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MINISTRY OF AGRICULTURE, FISHERIES AND FOOD

**FOOD STANDARDS COMMITTEE
REPORT ON
FLAVOURING AGENTS**



LONDON
HER MAJESTY'S STATIONERY OFFICE
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Food Standards Committee

The terms of reference of the Food Standards Committee are:

To advise the Secretary of State for Scotland, the Minister of Agriculture, Fisheries and Food, the Minister of Health, and as respects Northern Ireland the Secretary of State for the Home Department, on the composition, description, labelling and advertising of food with particular reference to the exercise of the powers conferred on Ministers by Sections 4, 5 and 7 of the Food and Drugs Act, 1955, and the corresponding provisions in enactments relating to Scotland and Northern Ireland.

The members of the Food Standards Committee are:

- M. W. PERRIN, Esq., C.B.E., M.A., B.Sc., F.R.I.C. (*Chairman*).
- J. G. BAUMGARTNER, Esq.
- J. M. BONFIELD, Esq.
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Joint Secretaries

- G. O. KERMODE, Esq.
- W. M. SHORTT, Esq., O.B.E., M.Sc., F.R.I.C.

Food Additives and Contaminants Sub-Committee

The terms of reference of the Food Additives and Contaminants Sub-Committee are:

To consider problems referred to the Sub-Committee by the Food Standards Committee in relation to all substances added to food, whether deliberately or not.

The members of the Food Additives and Contaminants Sub-Committee are:

- Professor R. A. MORTON, F.R.S., Ph.D., D.Sc., F.R.I.C. (*Chairman*).
- C. A. ADAMS, Esq., C.B.E., B.Sc., F.R.I.C., Barrister-at-Law.
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FOOD STANDARDS COMMITTEE

Report on Flavouring Agents

The Food Standards Committee have considered and adopted a Report by their Food Additives and Contaminants Sub-Committee on Flavouring Agents. The Report is as follows:

I. Introduction

1. In February 1961 a joint Press Notice was issued by the Ministries of Agriculture, Fisheries and Food, and Health, and the Scottish Home and Health Department, and Home Office, announcing a review of flavouring agents and solvents by this sub-committee, the Food Additives and Contaminants Sub-Committee of the Food Standards Committee. We intend to make solvents the subject of a separate report.

2. The trade, enforcement authorities and other interested bodies were invited to submit information as to flavouring agents, both natural and synthetic at present in use, the chemical composition and properties of these substances and the foods to which they are added or applied, the amounts used and mode of use and evidence as to the absence of any deleterious effect resulting from their use. We also asked for similar information about any new substances being developed and for information about advantages which these new substances may have over flavouring agents in current use. We also sought evidence of the need for control in this field and of any deleterious effects resulting from the use of flavouring agents whether used at present in this country or not.

3. Our terms of reference from the Food Standards Committee are to consider the problems referred to us by the Food Standards Committee in relation to flavouring agents added to food. We were specifically asked to advise whether there was a need for regulations to control the use of flavouring agents in food and in the preparation of food. It was in this context that we embarked upon our review and at the outset regarded flavouring agents as substances added to foods to impart or enhance particular smells or tastes other than sweet tastes. They are usually organic in nature, volatile and may be manufactured or of natural origin.

II. Historical Background

4. Flavouring agents are used widely in various food industries principally in the bakery, confectionery, dessert, frozen dessert, condiment, and beverage industry but their use in other industries, such as in the preparation of canned foods, soup powders, jams, jellies and preserves is considerable. Spices and herbs, fruits, buds, flowers, roots and stems, were the original flavouring agents known to man but their use involved certain limitations. To overcome these limitations the users of flavouring agents gradually developed techniques of extracting the essential flavouring components by processes of maceration, percolation, and distillation, by concentration of fruit juices and by the expression of flavouring oils. The isolation of the active principles of odour and flavour from organic materials in the 19th century led to the use of alcoholic solutions of these materials as flavours. Later, substances were prepared synthetically which were not present in nature to any significant extent and which had a much greater flavouring power than analogous natural flavours. By the turn of the century the flavourings in common use were nearly all artificial and with the exception of vanilla, lemon, orange, peppermint and wintergreen were being made with synthetic materials.

5. The flavouring agents themselves are used to prepare certain fundamental flavouring mixtures. These are known as flavouring mixtures of esters and are



widely used in the food industries mentioned in paragraph 4. They are mixtures of flavouring agents which closely resemble the odour and flavour of natural oils from fruits, nuts, roots, stems, herbs and spices and which contain no solvent diluent. These substances are called "fruit oils" by many commercial establishments. A flavouring essence is regarded by the industry and by us as a solution of a flavouring ester mixture or of flavouring agents in a suitable solvent.

III. Methods of Control in other Countries

6. *United States of America*

The 1958 amendment to the United States Food and Drug and Cosmetics Act, 1958 defines a substance as a food additive "if such substance is not generally recognised among experts qualified by scientific training to evaluate its safety, as having been adequately shown through scientific procedure . . . or experience based on common use in foods . . . to be safe under the conditions of its intended use . . .". The importance of this definition is that any substance which is generally recognised as safe is not subject to restriction in the same way as are "food additives". Following this change in the law the trade in the U.S.A. co-operated closely with the Food and Drug Administration classifying all the substances commonly used as flavourings. The Flavoring Extract Manufacturers' Association (FEMA) drew up a list of approximately 1,100 flavouring substances in use in the U.S.A. and each substance was classified into one of the four following classes:

- (1) no further action (NFA)
- (2) food
- (3) generally recognised as safe (GRAS)
- (4) food additive

7. The Food and Drugs Administration have published lists of synthetic and natural flavourings regarded as generally recognised as safe. These are reproduced at Appendices III and IV respectively. The lists of synthetic and natural flavourings contained in Appendices V and VI respectively are under consideration by the Food and Drugs Administration on petition for inclusion in permitted lists.*

We have been particularly impressed by the close co-operation between the trade and the Food and Drugs Administration in the United States in their endeavour to classify all flavouring substances. We would like to see a similar development in this country so that the transitional period for change from the proposed list of prohibited substances which we recommend can be made as quickly as possible to a list of permitted flavourings.

8. *Canada*

Division 10 of Part B of the Canadian Food and Drugs Act contains the provisions regulating the use of flavours. A flavouring preparation containing added Coumarin or an extract of Tonka Beans, the seed of *Dipteryx Oderata* Willd. or *Dipteryx Oppositifolia* Willd. is prohibited. The regulations also make a distinction between a fortified flavour and an artificial or synthetic flavour. A fortified flavour is one to which other natural extracts have been added, but at least 51 per cent of the flavouring strength must be derived from

*Since this report was completed, the substances listed in Appendix V have been published by the Food and Drugs Administration in a permitted list and those in Appendix VI in a proposed permitted list. (See Federal Register 29 FR 7427 and 29 FR 14625). There have been some changes of nomenclature and these two Appendices have therefore been revised to bring them in line with the lists appearing in the Federal Register.

the named fruit. Compositional standards are laid down for permitted essences and flavours shown in Appendix VII.

9. *Federal Republic of Germany*

The Federal German Food Law, 1958, prohibits the production and treatment of foodstuffs—including essences, flavouring and aromatic substances—in such a way as to render their consumption dangerous to health. The addition of "foreign substances" to food is forbidden unless specifically permitted. "Foreign substances" are defined as substances which do not contain digestible carbohydrates, fats, protein or have no natural content of vitamins, provitamins, aromatic or flavouring substances, or do not have them to an extent which is significant in their use in foodstuffs. Spices and extracts from spices are not prohibited since they contain aromatic and flavouring substances which are significant in their use in foodstuffs. Substances which have the same chemical combination as natural flavouring are also not prohibited. Appendix VIII sets out the flavouring substances in common use in Germany which do not come within the definition of "foreign substances". Appendix IX lists the "foreign substances" specifically permitted for use in flavourings. Appendix X lists substances specifically prohibited for use in food.

IV General Representations

10. A large number of flavouring agents were submitted in representations from the food industry for our consideration. These are listed in Appendices I and II. We have received the following general representations dealing with broad issues in the field of flavouring agents.

11. *Development and Formulation of Flavours*

Manufacturers of essences and flavourings in general feel that the trade is not over-expanding and that very few new flavours have been introduced since the end of the Second World War. Most of the flavouring agents which are extensively used today have been in use for at least 20 to 30 years. Any grand list of flavouring agents therefore is not likely to be substantially increased in the near future. New flavours in general are provided by manufacturers at the request of buyers but the discovery of a new chemical could lead manufacturers to make a new flavouring formulation for an existing flavour. We have received representations from trade interests that the classification of flavouring agents is not possible and any list of such substances would therefore have to set out in detail all the chemicals used. They strongly reject at this time the drawing up of a permitted list of flavouring agents to be used in food or in the preparation of food. The trade has drawn our attention to the fact that there may be as many as 30 different ingredients to one flavouring and that the formulation of one specific type of flavouring i.e. raspberry, varies widely from manufacturer to manufacturer and may vary in the case of a single manufacturer. This wide range of variations can be attributable either to the wishes of individual buyers for a distinct type of flavouring or to the particular manufacturing operations conducted by the food manufacturers. In general there is, in practice, no identity of composition for flavours of the same name nor necessarily, an identical essential ingredient in flavours of the same name let alone in flavourings of differing names. One or two ingredients of the same flavour might be common; but generally flavours are produced by selecting differing combinations of substances from the grand list of flavouring materials.

12. *Analyses and Quantities*

Although it is possible for flavourings experts to detect the presence of substances organoleptically the trade in their representations have emphasised that not only was it difficult to analyse many essences satisfactorily but that some components could not in fact be detected by analysis. For these reasons

essence manufacturers have not been able to control their products by analysis. Chemical entities have known formulae provided that they were 100 per cent pure but there were natural flavours for which the entire composition was not known. The manufacturers of essences have also represented that most flavourings were used in very small quantities and they advise buyers of the required amount to use in foods though some users employ larger quantities than recommended. The amounts however which finally remained in the food were generally very small. The manufacturers of essences were strongly of the view that it would be very difficult to calculate the maximum quantity of each ingredient in each essence which would remain in a particular food and this would only be possible with the use of an electronic computer.

13. *Regulations*

The trade has represented that the elimination of one flavour by the introduction of a permitted list would affect not one essence but quite possibly as many essences as a hundred. Moreover, the restriction on the use of certain chemicals could mean that larger quantities of other chemicals would have to be used in order to make the same number and variety of flavours with the possible consequence of introducing the risk of greater toxicity. The trade strongly represented that in view of the large number of flavouring agents widely used in this country and abroad, coupled with the difficulties of analysis, that regulations would be virtually impossible.

Moreover export trade in a number of foodstuffs might well be frustrated. The trade also contended that because many of these flavouring agents had been used in food for many years without giving rise to complaint of illness they could therefore be assumed to be harmless substances.

V The Sub-Committee's Review

The following aspects of flavouring agents appeared to us to warrant detailed examination.

14. *Whether the addition of flavouring agents to foods is necessary or desirable.*

The use of flavouring agents is a long standing practice not only by the manufacturers of foods but also the housewife in the preparation of home-made foods. We, therefore, feel that if there is adequate evidence that the flavouring agents currently in use have no deleterious effects on health there could be no reasonable objection to their continued and widespread use in this country. We cannot however accept the trade's view that long usage and no apparent ill effects are sufficient evidence to demonstrate that a substance is harmless in the absence of satisfactory toxicological data.

15. *Whether the addition of flavouring agent, or flavouring agents, to any particular food or class of foods should be prohibited.*

We were presented with very long lists (Appendices I and II to this report) of both natural and artificial flavourings without any corresponding scientific data on the pharmacological aspects or toxicity of these substances. Many of these flavourings, in particular the natural ones and those which simulate natural ones, have been used for a very long time. This cannot, however, be taken as an absolute indication of their safety. In our view this merely illustrated that in the amounts customarily used in food the flavours are not acutely toxic but no certain indication is given of any possible chronic effects. As we have stated before in consideration of other food additives, any chronic effects would be insidious and it would be difficult, if not impossible, to attribute them with certainty to the consumption of food containing flavouring agents. Few if any toxicity tests are carried out on new flavouring agents before they are brought

into use. It cannot be assumed that because a flavouring is "natural" it will necessarily be non-toxic. In the past reliance was placed upon simple organic compounds containing carbon hydrogen and oxygen for the manufacture of flavourings, but recent research has resulted in the introduction of more complicated compounds containing, in addition, the elements nitrogen, or sulphur without any toxicity testing. We feel strongly that these new compounds should be tested thoroughly before being introduced into foodstuffs in this country. We have reviewed the long list of natural flavouring agents contained in Appendices I and II and were somewhat disturbed that there was really no toxicity data on most of these flavouring agents. Suspicion can, however, be focussed on a few substances in the list and we have reported on these flavourings later in the report. We strongly urge manufacturers not to introduce new flavourings unless assured of their safety and we recommend that the existing flavourings, together with any new substances, should be reviewed again in five years' time.

16. What flavouring agents should be prohibited or omitted

It is obvious that in the interests of public health only flavouring agents which are without any deleterious effects when consumed over long periods should be used in foods. Whether this can be best achieved by drawing up a list of prohibited flavouring agents or by the introduction of a list of permitted flavourings is the main issue of this report. The main argument in favour of a list of permitted flavouring agents is that the introduction of such a list of permitted flavouring agents adjudged to be suitable for use in food would give greater protection both to the consumer and food manufacturer than the mere prohibition of a number of specified flavouring agents known to be harmful. The difficulty which has faced the sub-committee in considering whether a permitted list would be practicable or not has been the very large number of flavouring agents represented as being used and the absence of adequate toxicological and biological information on them. Since it is not at present possible to compile a list of harmless flavours the Committee favour the prohibition of those flavours shown or suspected to be harmful as a first stage towards the regulation of the use of flavouring agents. We recommend therefore that a prohibited list should only be regarded as a transitional stage and that eventually regulations should be introduced based upon the use of a list of permitted flavouring agents. During the transitional period the list of prohibited flavouring agents could be easily extended to include any substance which proved to be harmful or open to suspicion. We are of the opinion that this form of control would afford additional safeguards to public health but not to the same extent as would a permitted list, if such a list could be established on toxicological evidence.

17. Whether the amount of flavouring agent used in foods should be limited

The manufacturers of flavouring agents have represented that they provide instructions as to use for their products and that the majority of manufacturers of foodstuffs find that the use of a flavouring agent is self-limiting. We agree that no useful purpose would be served at this stage by regulations prescribing maximum limits for the amount of flavouring agent to be used in foods. Any such attempt to prescribe maximum limits would seriously impair the art of food flavouring generally.

18. Whether the purchaser should receive any additional notification by labelling, declaration or other means of the addition of flavouring agents.

The Food Standards Committee dealt with this question in their Report on Food Labelling which was published in September 1964.

19. *Whether the sale of flavouring agents should be regulated.*

Flavouring agents for use in food may be sold as pure natural oils or flavouring mixtures or flavouring essence containing a solvent. We feel that all containers of flavouring agents intended for use in food by food manufacturers should be conspicuously marked with a description indicating whether it is a natural flavouring, natural flavouring with fortification or synthetic flavouring. We make no precise recommendation as to how these containers should be labelled but would expect flavourings as a class to be treated in the same way as other classes of food additives, such as colours.

20. *Whether provision in any regulation should be made to control the importation of foods containing flavouring agents.*

Any recommendations in this report should apply also to imported foods containing flavouring agents, and we assume that any statutory list of prohibited flavouring agents would lead the importer to demand a warranty that the food offered conformed to U.K. regulations.

21. *Review of Further Classes of Additives.*

In June 1962 a joint Press Notice was issued by the Ministries of Agriculture, Fisheries and Food, and Health, and the Scottish Home and Health Department, and Home Office announcing a review of a number of classes of additives by the Food Standards Committee. Representations have been received for a number of acids previously submitted for use primarily as flavourings to be considered as acidifiers. We have therefore decided to postpone a classification of these following acids and to make no recommendations in this report on their use in food:

Formic acid	Acetic acid
Propionic acid	Pyruvic acid
Lactic acid	Laevulinic acid
Crotonic acid	Tiglic acid
Butyric acid	isoButyric acid
2-Ethylbutyric acid	Valeric acid
isoValeric acid	Caproic acid
Hex-2-enoic acid	Heptolic acid
Methylamylactic acid	Caprylic acid
Nonoic acid	Capric acid
α -Caprylbutyric acid	Undecylenic acid
Lauric acid	Myristic acid
14-Hydroxytetradecanoic acid	Palmitic acid
Stearic acid	Oleic acid
Malonic acid	Succinic acid
Malic acid	Tartaric acid
Maleic acid	Fumaric acid
Adipic acid	Sebacic acid
Citric acid	Benzoic acid
Phenylacetic acid	Cinnamic acid
Hydrocinnamic acid	Tannic acid
Gallic acid	Hydrochloric acid
Pyroligneous acid	Phosphoric acid

It is our intention to seek further information from interested parties concerning the use of these acids and we will report on them together with the other classes of additives under review.

VI Recommendations

22. We have explained in Section V why we at this time favour the adoption of a list of prohibited flavouring agents and we recommend that the following substances should be prohibited by regulations for use in foods as flavouring agents:

Coumarin	Dihydrosafrole	Dulcamara	Birch Tar Oil
Tonka bean	iso Safrole	Pennyroyal Oil	Cade Oil
Safrole	Agaric Acid	Oil of Tansy	Volatile Bitter
			Almond Oil
Sassafras Oil	Nitrobenzene	Rue Oil	Male Fern

23. Our reasons for selecting these substances out of the many flavouring materials which were submitted for our consideration are largely based on their pharmacological properties and in some cases evidence of probable toxicity. We have consulted interested parties on the use of these substances as flavourings in this country and have been informed that they are little used at the present time. We understand that coumarin is at present being employed as a material in a programme of fundamental research on the effects of food additives on enzymes by the British Industrial Biological Research Association. The outcome of this research could be of great importance for the future consideration of the safety in use of food additives generally and we welcome this development. Although we recommend a review of all flavouring materials again in five years time we would be prepared to consider any toxicological evidence on these substances as it becomes available.

October 1964

FSC/FAC/REP.5

NATURAL FLAVOURING SUBSTANCES SUBMITTED IN
REPRESENTATIONS

Group 1. Spices, Herbs and other Natural Seasonings

<i>Substance</i>	<i>Substance</i>
Allspice	Cusparia bark
Almonds, bitter	Dandelion root
Ambergris	Deertongue leaves
Ambrette seeds	Dill seeds
Angelica root	Elderflowers
Angelica seed	Elecampane root
Angostura (Cusparia bark)	Fennel, sweet and bitter
Aniseed	Fenugreek seeds
Asafoetia gum	Fruits, edible (including juices, natural essences, distillates and peels where applicable)
Basil	Fusel oil
Bay	Galangal root
Beeswax	Garlic
Benzoin	Genet Absolute (Spartium junceum)
Blackcurrant buds & leaves	Gentian root
Boronia Absolute	Geranium
Buchu leaves	Ginger root
Burdock root	Glycyrrhiza
Caffeine & its salts	Grains of Paradise
Calamus root	Gualacum wood
Camomile	Haw resinol
Camphor	Hickory resinol
Canada balsam	Hoarhound herb
Capers	Hops
Capsicum (including chillies)	Horseradish
Caraway	Immortelle
Caraway, black	Jasmin Absolute
Cardamoms	Juniper berries
Carnation Absolute	Kino gum
Carob beans	Kola nuts
Cascarilla bark	Krameria root
Cassia bark	Labdanum ciste Absolute
Cassie Absolute	Labdanum resinoid
Castoreum	Lavender
Catechu	Licorice
Cayenne pepper	Linden flowers
Celery seeds	Longose
Champaca	Mace
Cherry bark, wild (prunus serotina).	Marjoram
Cherry laurel water	Marjoram, pot
Chervil	Marjoram, sweet
Chicory, roasted	Marshmallow leaves and root
Chillies	Mastic
Chiretta herb	Melissa
Chives	Mellilot
Cinchona bark	Mezereon bark
Cinnamon bark	Mimosa Absolute
Civet	Mint (spearmint)
Cloves	Mints, various
Coltsfoot leaves	Musk
Coriander	Mustard
Cowslip flowers	Myrrh
Creosote, beechwood	New mown hay Absolute
Cumin (Cummin)	
Curry mixtures	

Substance

Nutmeg
Oak bark
Oak moss, Concrete
Opoponax
Orange flowers
Oregand
Orris root
Paprika
Parsley
Pennyroyal
Pepper (black and white)
Peru balsam
Pimento berries
Quassia wood
Quillaia bark
Rose
Rosemary
Saffron
Sage
Sarsaparilla root
Sassafras bark
Savory

Substance

Senega root
Sesame
Slippery elm bark
Soy, China
Spearment
Storax, prepared
Tarragon
Thyme
Tolu balsam
Tombaco Absolute
Tonquin beans
Tuberose, Absolute
Turmeric
Valerian root
Vanilla
Verbena
Violet Absolutes (leaves, Parma and Victoria)
Woodruff
Wormwood herb
Ylang Ylang flowers
Zedoary root

Group 2. Essential Oils, Natural Extractives and Distillates*Substance*

Absinthium oil
Acacia gum (arabic gum)
Acetum scillae
Ajowan
Allspice
Almonds, bitter (S.A.P.)
Aloe extract
Ambrette, Absolute, oil
Ambrette, seed
Angelica, seed
Angelica, root
Angostura (Cusparia bark)
Anise Star, oil (*Illicium verum*)
Aniseed (*pimpinella anisum*)
Arnica flower
Arnica root
Artemisia (*artemisia cina*)
Asafoetida
Balsam of Peru
Basil (*ocimum basilicum*)
Bay (*laurus nobilis*)
Bay (*myrcia* oil)
Beechwood, creosote
Benzoin, gum
Benzoin (tinct.)
Bergamot oil
Birch tar, rectified
Bois de Rose
Buchu, leaves, oil
Cade (*juniper tar*)
Cajuput
Calamus oil
Camomile
Camomile flower, Hungarian oil

Substance

Camphor
Cananga
Capsicum
Caraway, oil
Cardamom seed, oil
Carrot, seed
Carrot, oil
Cascarilla
Cassia bark, oil
Castoreum liquid
Catechu
Cayenne
Cedar leaf (*thuja occidentalis*)
Cedarwood, American red oil
Cedarwood (*juniperus virginians* and *J procera*)
Celery seed oil
Celery plant
Chamomile (*anthemis nobilis*)
Cherry, wild, bark
Cherry, laurel (S.A.P.)
Chicory
Chirata
Cinchona bark
Cinnamon, bark, oil
Cinnamon, leaf, oil (Ceylon, Saigon, China)
Citron
Citronella
Civet, Absolute
Clary sage, oil
Clove bud oil
Clove leaf and clove stem
Cocoa, extract

Substance

Cognac green, oil
 Cognac (including wine lees)
 Cola nut
 Coltsfoot
 Coriander, oil
 Costus
 Cubebs
 Cumin
 Curry powder
 Cusparia (*cusparia trifoliata*)
 Dandelion root
 Davana (*artemisia pallens*)
 Dill (*anethum graveolens*)
 Elderflower
 Elemi, oil
 Estragon oil (*tarragon*)
 Eucalyptus, *citriodora*
 Eucalyptus oil
 Fennel, sweet, oil
 Fennel, bitter
 Fenugreek extract, concentrated
 Flouve (*anthoxanthum odoratum*)
 Galangal
 Galbanum, oil
 Garlic
 Gentian
 Gentian, root extract, concentrated
 Geranium
 Geranium (East Indian)
 Geranium rose, oil
 Ginger, oil
 Ginger grass (*cymbopogon Martini* var. *Sofia*)
 Glycyrrhiza
 Glycyrrhizin, ammoniated
 Grapefruit, oil
 Guaiac wood (*bulnesia sarmienti*)
 Hay, oil
 Heliotrope
 Hoarhound
 Honeysuckle
 Hops
 Horseradish
 Hyssop, oil
 Immortelle, oil Absolute
 Jasmine
 Juniper (berries)
 Juniper, oil terpeneless
 Lavandin
 Lavender
 Lavender, spike
 Leek
 Lemon
 Lemongrass
 Lemon, oil
 Lemon, oil terpeneless
 Lemon, peel (extract)
 Licorice
 Lily of the valley
 Lime, distilled
 Lime, expressed

Substance

Lime, oil
 Linaloes
 Linseed (extract)
 Longose
 Lovage, oil
 Mace, oil
 Mandarin, oil (tangerine)
 Marjoram, sweet
 Mate
 Matico
 Melissa (*mellissa officinalis*)
 Milfoil (*achillea millefolium*)
 Muscatel
 Musk
 Mustard
 Myrrh, oil (*clair de myrrhe*)
 Naringin
 Neroli bigharade, (oil of bitter orange flowers)
 Neroli Italian, oil
 Nindi (*aeolanthus gamwelliae*)
 Nutmeg, oil
 Oak moss, Absolute
 Olibanum, oil
 Onion
 Onion, kibbled
 Onion powders
 Opoponax
 Orange, bitter and sweet
 Orange, blossoms Absolute
 Orange, flower
 Orange, peel, sweet, oil
 Orange, peel, sweet, oil terpeneless
 Origanum
 Orris, concrete
 Orris, extract
 Orris, root
 Palmarosa
 Paprika
 Paregoric
 Parsley, plant
 Parsley oil
 Parsley seed
 Patchouli, oil
 Peach kernel (S.A.P.)
 Pennyroyal
 Pepper
 Pepper, black
 Pepper, white
 Peppermint (*mentha piperith*)
 Peppermint (*mentha arvensis*)
 Peppermint, oil
 Peruvian balsam
 Petitgrain, oil
 Petitgrain mandarin, oil
 Pimento, berry
 Pimento, oil
 Pimento, leaf
 Pine needles, oil
 Pine (*pinus pumilionis* P. *sylvestris* and *Abies sibirica*)

Substance

Quassia
Rose
Rose Absolute
Rose, oil, Bulgarian true otto (attar of roses)
Rose geranium
Rosemary, oil
Rosewood (aniba rosaeodora)
Rue
Saffron
Sage
Sage, Spanish oil
Sandalwood (santalum album, eucarya spicata amyris balsamifera)
Sassafras, oil
Savory
Savory, summer (satureia hortensis)
Savory, winter (satureia montana)
Shallots
Spearmint, oil
Tagetes
Tamarind
Tangerine
Tarragon (estragon)
Tarragon, oil

Substance

Terebene
Thyme
Thyme (thymus serpyllum)
Thyme (thymus vulgaris and T. zygis)
Thyme, white, oil
Ti-Tree (melaleuca alternifolia, M. linaria-folia, M. viridiflora, leptospermum citratum)
Tolu balsam
Tonquin bean
Turmeric
Turpentine B.P.
Turpentine, steam distilled
Tussilaga
Valerian
Vanilla, extract
Verbena (lippia citriodora)
Vetiver, oil
Violet
Wintergreen
Wintergreen (gaultheria procumbens and Betula lenta)
Wormwood (artemisia absinthium)
Wood smoke
Ylang-Ylang

Group 3. Foods & Beveridges used to Impart Flavour to other Foods*Substance*

Anchovies
Butter
Caramel
Chocolate, block
Cocoa
Coconut
Coffee
Fruits, edible (including juices, natural essences, distillates and peels where applicable)
Fruits and fruit juices (including concentrates)
Honey
Hydrolysed proteins
Liqueurs
Malt

Substance

Malt extract
Malted milk
Meat extracts
Molasses
Shallots
Soy sauce
Spirits
Tea
Tomato puree
Treacle
Vegetables
Vegetables, dried
Vinegars
Wines
Wines, spirits and liqueurs
Yeast extract

SYNTHETIC FLAVOURING SUBSTANCES

Submitted in Representations

Acids

Formic Acid	14-Hydroxytetradecanoic Acid
Acetic Acid	Palmitic Acid
Propionic Acid	Stearic Acid
Pyruvic Acid	Oleic Acid
Lactic Acid	Malonic Acid
Laevulinic Acid	Succinic Acid
Crotonic Acid	Malic Acid
Tiglic Acid	Tartaric Acid
Butyric Acid	Maleic Acid
iso Butyric Acid	Fumaric Acid
Ethylbutyric Acid	Adipic Acid
Valeric Acid	Sebacic Acid
isoValeric Acid	Citric Acid
Caproic Acid	Benzoic Acid
Hex-2-Enoic Acid	Phenylacetic Acid
Heptonic Acid	Hydrocinnamic Acid
Methylamylacetic Acid	Cinnamic Acid
Caprylic Acid	Gallic Acid
Nonoic Acid	Tannic Acid
Capric Acid	Pyroligneous Acid
α -Caprylbutyric Acid	Pyroligneous Acid Extract
Undecylenic Acid	Hydrochloric Acid
Lauric Acid	Phosphoric Acid
Myristic Acid	

Acetals

Formaldehyde Phenylethylene Glycol	Citral Dimethyl Acetal
Cyclic Acetal	Citral Diethyl Acetal
Acetal	Hydroxycitronellal Dimethyl Acetal
Phenylacetaldehyde Dimethyl Acetal	Hydroxycitronellal Phenylethyl Acetal
Phenoxyacetaldehyde Dimethyl Acetal	Hydratropic Aldehyde Dimethyl Acetal
Phenoxyacetaldehyde Propylene Glycol	Hydratropic Aldehyde Ethylene Glycol
Cyclic Acetal	Cyclic Acetal
Phenoxyacetaldehyde Butylene Glycol	Hydratropic Aldehyde Propylene Glycol
Cyclic Acetal	Cyclic Acetal
Glyceryl Acetal of Phenyl Acetic Aldehyde	Benzaldehyde Dimethyl Acetal
Heptaldehyde Dimethyl Acetal	Benzaldehyde Propylene Glycol Cyclic
Heptaldehyde Diethyl Acetal	Acetal
Glyceryl Acetal of n-Heptanal	Benzaldehyde Diphenylethyl Acetal
Octanal Dimethyl Acetal	Tolyl Aldehyde Glyceryl Acetals
Nonanal Dimethyl Acetal	Cinnamic Aldehyde Dimethyl Acetal
Decylic Aldehyde Dimethyl Acetal	Cinnamaldehyde Ethylene Glycol Cyclic
Decylic Aldehyde Diethyl Acetal	Acetal
Methyl Nonyl Acetaldehyde Dimethyl	
Acetal	

Alcohols

Propyl Alcohol	Mixed Amyl Alcohols
Propylene Glycol	isoAmyl Alcohol
Allyl Alcohol	isoPropyl Alcohol
Acetyl Methyl Carbinol	n-Hexanol
Butyl Alcohol	Hexenol
isoButyl Alcohol	3-Hexenol

Alcohols (continued)

2-Ethylhexanol	Benzyl Alcohol
Heptyl Alcohol	Phenylethyl Alcohol
Ethyl Butyl Carbinol	Phenoxyethyl Alcohol
n-Octanol	β -Cresoxyethanol
Amyl Vinyl Carbinol	Benzylethyl Alcohol
n-Nonyl Alcohol	Hydratropic Alcohol
Nonadienol	Phenylbutyl Alcohol
Decyl Alcohol	Phenylhexanol
Dodecyl Alcohol	Methylphenyl Carbinol
Nonadecanol	Benzylpropyl Carbinol
Citronellol	isoPropylbenzyl Carbinol
Hydroxycitronellol	Benzyl isoButyl Carbinol
Geraniol	Phenylbenzyl Carbinol
Tetrahydrogeraniol	Benzyl dimethyl Carbinol
Rhodinol	Phenylethyl dimethyl Carbinol
Nerol	Phenylethyl methyl ethyl Carbinol
Linalool	Cinnamyl Alcohol
Tetrahydrolinalool	Methylstyryl Carbinol
Nerolidol	Phenylbutene-1-ol-3
Farnesol	Anisyl Alcohol
Trimethyl cycloHexanol	Cuminic Alcohol
Perillyl Alcohol	p-Cresol
d-&l- Dihydrocarveol	Thymol
Terpineol	Guaiacol
Menthol	2-Methoxy-4-Methyl Phenol
Carvomenthol	Cresotium B.P.
Cineole	Propenyl Guaethol
Lime Terpene	Eugenol
Borneol	isoEugenol
Nopal	orthoEugenol
Furfuryl Alcohol	Piperonyl Alcohol
Tetrahydro Furfuryl alcohol	

Aldehydes

Acetaldehyde	Dodecanal
Paraldehyde	Aldehyde C12 ("isoduodecyl")
Aldehyde C3	$\alpha\beta$ -Dodecylenic Aldehyde
n-Butyl Aldehyde	Tridecanaldehyde
iso-Butyl Aldehyde	Methyldecyl-Acetaldehyde
Aldehyde C5	Tridecanal
iso-Valeraldehyde	Aldehyde C.14
Methyl Ethyl Acetaldehyde	Aldehyde C.16
n-Hexaldehyde	Aldehyde C.18
2-Ethylbutyraldehyde	Aldehyde C.19
Hexenal	Aldehyde C.20
2-Hexenal	Raspberry Aldehyde
3-Hexenal	β -Methyl Thiopropionaldehyde
n-Heptaldehyde	Pyruvic Aldehyde
n-Octyl Aldehyde	Citronellal
n-Nonyl Aldehyde	Hydroxycitronellal
Methylhexyl Acetaldehyde	Citral
Nonylenic Aldehyde	α -cycloCitral
Nonadienal	β -cycloCitral
Melonal	isocycloCitral
n-Decylaldehyde	pseudo cycloCitral
Undecylic Aldehyde	Methylionyl Acetaldehyde
Undecenal	Benzaldehyde
	Phenylacetaldehyde
	Phenoxy Acetaldehyde

Aldehydes (continued)

Hydratropic Aldehyde
Cinnamaldehyde
 β -Phenyl Propionaldehyde
2:3-Dimethyl-3-Phenyl Propaldehyde
 α -Methylcinnamaldehyde
Butyl cinnamic Aldehyde
Amylcinnamic Aldehyde
Hexylcinnamic Aldehyde
Tolualdehyde
p-Tolyl Acetaldehyde
Methyl Hydratropic Aldehyde
Dimethyl Phenylacetic Aldehyde
Cyclamen Aldehyde
Cuminal
isoPropyl Phenylacetic Aldehyde
Salicylic Aldehyde
p-Hydroxy Benzaldehyde
Protocatechuic Aldehyde

Methyl Salicylic Aldehyde
Anisaldehyde
Veratric Aldehyde
p-Methoxy Cinnamaldehyde
 α -Methyl-p-Methoxy Cinnamic Aldehyde
Vanillin
Methyl Vanillin
Ethyl Vanillin
Ortho Vanillin
Heliotropin(e)
2-Piperonyl Propanal
Furfural
5-Methyl Furfuraldehyde
 α -Methylfuryl Acrolein
Furfuryl Acrolein
Vetiveryl Aldehyde

Ethers

Ether
Ether (Meth.)
Nitrous Ether Spirit B.P.C. 1959
Rum Ether
Allyl Glycol Ether
Phenyl Allyl Ether
Butyl Benzyl Ether
isoButyl Benzyl Ether
isoAmyl Benzyl Ether
Phenylethyl Methyl Ether
Anisole
o-Cresylmethyl Ether
p-Cresylmethyl Ether
Anethole
Methyl Chavicol
Propyl Anisole
p-Cresyl Ethyl Ether
Carvacrol Ethyl Ether
p-Cresylbenzyl Ether
Phenyl-p-Tolyl Ether

Diphenyl Oxide
Veratrole
Resorcinol Dimethyl Ether
Dimethyl Resorcinol
Hydroquinone Dimethylether
Methyl Eugenol
Methyl isoEugenol
Amyl isoEugenol
isoEugenyl isoAmylether
Benzyl isoEugenol
Ethyl Guaiacol
 β -Naphthyl Methyl Ether
 β -Naphthyl Ethylether
Neroli (synthetic)
 β -Naphthyl isoPropyl Ether
 β -Naphthyl Butyl Ether
 β -Naphthyl isoButyl Ether
Musk Ambrette
cycloHexylmethyl Ether

Ketals

β -Ionone Diethyl Ketal

Methyl- β -Ionyl-Diethyl Ketal

Ketones

Acetone
Methyl Ethyl Ketone
Methyl n-Propyl Ketone
Methyl isoButyl Ketone
Methyl n-Amyl Ketone
Methyl isoAmyl Ketone
Dipropyl Ketone
Methyl Hexyl Ketone
Ethyl Amyl Ketone
Ethyl isoAmyl Ketone
Methyl Heptenone

Methyl Heptyl Ketone
Methyl Nonyl Ketone
iso Amyl Ketone
iso Butylheptenone
Methyl Undecyl Ketone
Methyl Undecelenyl Ketone
Acetyl Methyl Carbinol
Acetyl Ethyl Carbinol
Butyrolin
Diacetyl
Acetyl Propionyl

Ketones (continued)

Acetyl Butyryl	1-(p-Methoxy Phenyl)-Penten-1-one-3
Acetyl isoButyryl	Acetovanillone
Acetyl Valeryl	Vanillylidene Acetone
Acetyl isoValeryl	Zingerone
Acetyl Caproyl	Piperonyl Acetone
Dibutyryl	Ethyl 2-(3':4'- Methyleneedioxy Phenyl)
Acetyl Nonoyl	Vinyl Ketone
Alphanone	Musk Ketone
Tuberone	Benzophenone
Acetophenone	Dibenzyl Ketone
Methyl Acetophenone	β -Naphthyl Methyl Ketone
Dimethyl Acetophenone	2-Hydroxy-3-Methyl-2-cyclo Pentene-
isoJasmone	1-one
p-iso Propyl Acetophenone	Methylcyclopentenolone
Propiophenone	Amylcyclopentenolone
Butyrophenone	Furfuryl Methyl Ketone
Valerophenone	2-Hexylidene cycloPentanone
isoValerophenone	Tetramethyl EthylcycloHexanone
Benzyl isoButyl Ketone	TriethylmethylcycloHexenone
Benzyl Acetone	Maltol
α -Methyl Benzyl Acetone	Ethylene Cyclic Brassylate
Benzal Acetone	Menthone
Benzylidene Methyl Acetone	Carvone
p-Methyl Benzyl Acetone	Camphor
p-Hydroxybenzyl Acetone	d-Fenchone
p-Acetoxy Benzyl Acetone	Verbenone
p-Methoxy Acetophenone	Ionones
p-Methoxyphenyl Acetone	Irono-Alpha
α -Methylanisylidene Acetone	"Methylirones"

Lactones

γ -Butyrolactone	Ambrettolide
$\gamma\gamma$ -Dibutyl- α -Butyrolactone	α -Stearolactone
γ -Valerolactone	α -Ethyl- β -Methylvalerolactone
γ -Hexalactone	α -Ethyl- β -Tetramethylene Butyrol-
γ -Octalactone	actone
γ -Nonyl Lactone	Coumarin
γ -Decalactone	3-Methyl Coumarin
$\gamma\gamma$ -Decalactone	4-Methyl Coumarin
γ -Methyl- γ -Methyl Octanoic Acid	6-Methyl Coumarin
Lactone	Maraniol
Undecalactone	6-Ethyl Coumarin
δ -Hydroxyundecanoic Acid Lactone	Dihydrocoumarin
Dodecalactone	6-Methyl-dihydrocoumarin
C12-Lactone	Lactones
Exaltolide	

Miscellaneous

Alkones	Benzyl isoThiocyanate
Dimethyl Sulphide	Methyl Mercaptan
Dipropyl Disulphide	Propyl Mercaptan
Butyl Sulphide	isoButyl Mercaptan
Diallyl Sulphide	Furfuryl Mercaptan
Diallyl Disulphide	Thioguanicol
Chloroform	Pyridine
Iodoform	Piperidine
Bromstyrol	n-Pelargonyl Piperidine
Allyl isoThiocyanate	N-Cinnamyl Acryloyl Piperidide

Miscellaneous (continued)

Piperine	Diphenylmethane
Indole	Monoamylamine
Skatole	Monosodium Glutamate
N-Pelargonyl Vanillamide	Quinine Hydrochloride
Vanillylamide Pelargonate	Quinine Sulphate
p-Methyl Quinoline	Quassine
6-iso Butyl Quinoline	Ambraine
1:2:3:4-Tetrahydro-6-Methyl-Quinoline	Cineole
Safrol	Lime Terpene
iso-Safrole	Citrate of Iron
Propylidene Phthalide	Citrate of Iron and Ammonia
Musk Xylol	Citrate of Iron and Quinine
p-Cymene	Ferric Chloride
Versalide	Terebene B.P.C.
Dipentene	Terpinolene (Light)

Esters

Amyl Nitrate	Amyl Acetate
Nitrous Ether	isoAmyl Acetate
Methyl Formate	Ethylbutyl Acetate
Ethyl Formate	Hexyl Acetate
Propyl Formate	Hexenyl Acetate
isoPropyl Formate	2-Hexenyl Acetate
Butyl Formate	3-Hexenyl Acetate
isoButyl Formate	Ethylene Glycol Monobutyl Ether Acetate
Amyl Formate	Methyl isoButyl-Carbonyl Acetate
isoAmyl Formate	Heptyl Acetate
Hexyl Formate	Octyl Acetate
2-Hexenyl Formate	isoOctyl Acetate
Heptyl Formate	Nonyl Acetate
Octyl Formate	Decyl Acetate
Geranyl Formate	Undecylenyl Acetate
Tetrahydrogeranyl Formate	Lauryl Acetate
Citronellyl Formate	Nonanediol-1:3-Diacetate
Rhodinyl Formate	Saccharose Octaacetate
Linalyl Formate	Acetyl Acetate
Neryl Formate	Acetyl Methyl Carbonyl Acetate
Maple Lactone Formate	Ethyl Acetoacetate
isoPulegol Formate	Ethyl Butyrate
Terpinyl Formate	Butyl Butyryl Acetate
Bornyl Formate	Butyl Glycollate
Benzyl Formate	Butyl Butyryl Glycollate
Phenylethyl Formate	Ethyl-4-Pentenoate
Phenyl Propyl Formate	isoAmyl-4-Pentenoate
Cinnamyl Formate	Geranyl-4-Pentenoate
Benzyl Dimethyl Carbonyl Formate	Ethyl Diallyl Acetate
Anisyl Formate	Geranyl Diallyl Acetate
Eugenyl Formate	Methyl-β-Ionyl Acetate
isoEugenyl Formate	Methyl-β-Ionyl Allylacetate
Perillyl Formate	Methyl-α-Ionyl Allylacetate
Vetiveryl Formate	Furfuryl Acetate
Methyl Acetate	Tetrahydrofurfuryl Acetate
Ethyl Acetate	Methyl Furfuracrylate
Propyl Acetate	Ethyl Furfuracrylate
isoPropyl Acetate	Propyl Furfuracrylate
Allyl Acetate	Allyl Furfuracrylate
Methylallyl Acetate	Maple Lactone Acetate
Butyl Acetate	Cyclohexyl Acetate
isoButyl Acetate	p-Tert-Butyl-cycloHexylacetate

Esters (continued)

Allyl cycloHexyl Acetate	isoEugenyl Phenylacetate
Geranyl Acetate	Guaiyl Acetate
Tetrahydrogeranyl Acetate	Guaiyl Phenylacetate
Citronellyl Acetate	Cedryl Acetate
Rhodinyl Acetate	Vetiveryl Acetate
Linalyl Acetate	Santalyl Acetate
Neryl Acetate	Santalyl Phenylacetate
Citral Enol Acetate	Methyl Propionate
Terpinyl Acetate	Ethyl Propionate
Carvyl Acetate	Propyl Propionate
(d. & l-) Dihydro Carveyl Acetate	isoPropyl Propionate
Perillyl Acetate	Allyl Propionate
Menthyl Acetate	Butyl Propionate
Bornyl Acetate	Amyl Propionate
Nopyl Acetate	Hexyl Propionate
Phenyl Acetate	3-Hexenyl Propionate
Benzyl Acetate	Octyl Propionate
Phenylethyl Acetate	Decyl Propionate
Phenyl Propyl Acetate	Lauryl Propionate
Cinnamyl Acetate	Ethyl Lactate
α -Amylcinnamyl Acetate	Butyl Lactate
Phenylbutyl Acetate	Ethyl Butyryllactate
Styralyl Acetate	Butyl Butyryllactate
Dimethylbenzylcarbinyl Acetate	Ethyl Pyruvate
Benzylethyl Carbinyl Acetate	isoAmyl Pyruvate
iso Butylbenzylcarbinyl Acetate	Ethyl Laevulinate
Methyl Phenylethyl-Carbinyl Acetate	Methyl β -Thiopropionate
Phenylethyl-Dimethylcarbinyl Acetate	Methyl β -Methyl Thiolpropionate
Phenylbenzylcarbinyl Acetate	Methyl β -Ethyl Thiolpropionate
p-Tolyl Acetate	Ethyl Furyl Propionate
p-Methylbenzyl Acetate	isoButyl Furyl Propionate
Anisyl Acetate	Tetrahydro Furfuryl Propionate
Eugenyl Acetate	cycloHexyl Propionate
iso Eugenyl Acetate	Ethyl cycloHexyl Propionate
Vanillin Acetate	Allyl cycloHexyl Propionate
Piperonyl Acetate	Butyl cycloHexane Propionate
Phenoxyethyl Acetate	Geranyl Propionate
β -Cresoxyethyl Acetate	Tetrahydrogeranyl Propionate
Allyl Phenoxyacetate	Citronellyl Propionate
Rosone	Rhodinyl Propionate
Phenylglycol Acetate	Linalyl Propionate
Methyl Phenylacetate	Neryl Propionate
Ethyl Phenylacetate	Terpinyl Propionate
Propyl Phenylacetate	Carvyl Propionate
Allyl Phenylacetate	(d- & l-) Dihydro Carveyl Propionate
Butyl Phenylacetate	isoBornyl Propionate
Amyl Phenylacetate	Benzyl Propionate
isoAmyl Phenylacetate	Phenyl Ethyl Propionate
Hexyl Phenylacetate	Phenyl Propyl Propionate
Octyl Phenylacetate	Cinnamyl Propionate
Geranyl Phenylacetate	m-Methylbenzyl Propionate
Citronellyl Phenylacetate	Anisyl Propionate
Rhodinyl Phenylacetate	Methyl β -Phenyl Propionate
Linalyl Phenylacetate	Ethyl Phenyl Propionate
isoBornyl Phenylacetate	Vetiveryl Propionate
cycloHexyl Phenylacetate	Methyl Butyrate
Benzyl Phenylacetate	Ethyl Butyrate
Phenylethyl Phenylacetate	Ethyl α -Methyl Butyrate
Cinnamyl Phenylacetate	Propyl Butyrate
m-Cresyl Phenylacetate	Propyl isoButyrate
p-Cresyl Phenylacetate	isoPropyl Butyrate

isoPropyl isoButyrate	Hydratropyl isoButyrate
Allyl Butyrate	Phenylpropyl Butyrate
Allyl isoButyrate	Phenylpropyl isoButyrate
Methallyl Butyrate	Cinnamyl Butyrate
Allyl α -Methyl Butyrate	Cinnamyl isoButyrate
Allyl 2-Ethylhexoate	Cinnamyl α -Methylbutyrate
Butyl Butyrate	Styrallyl Butyrate
isoButyl α -Methylbutyrate	Styrallyl isoButyrate
Amyl Butyrate	Dimethylphenyl Carbinyl isoButyrate
isoAmyl α -Methyl Butyrate	Benzyl dimethyl Carbinyl Butyrate
Hexyl Butyrate	isoPropylbenzyl Carbinyl Butyrate
Hexyl isoButyrate	Phenylethyl dimethyl Carbinyl isoButyrate
Hexyl α -Methyl Butyrate	p-Cresyl isoButyrate
3-Hexenyl Butyrate	Cumyl Butyrate
2-Hexenyl-1-Methyl Butyrate	Cumyl isoButyrate
Heptyl Butyrate	Anisyl Butyrate
Octyl Butyrate	Anisyl isoButyrate
Octyl isoButyrate	Piperonyl isoButyrate
Ethylhexyl Butyrate	Phenoxyethyl isoButyrate
isoAmyl Propenyl Carbinylmethyl ethyl	Methyl Phenylbutyrate
Acetate	Ethyl Phenyl isoButyrate
Decyl Butyrate	Guaiyl Butyrate
Acetylmethyl Carbinyl Butyrate	Vetiveryl Butyrate
Trimethylene Glycol Dibutylate	Ethyl Acrylate
Monobutylin	Ethyl Crotonate
Dibutylin	iso Amyl Crotonate
Tributylin	Hydroxycitronellol Crotonate
Maple Lactone Butyrate	Neryl Crotonate
Tetrahydrofurfuryl Butyrate	Undecelenyl Crotonate
Tetrahydrofurfuryl α -Methylbutyrate	Methyl β -Ionyl Crotonate
cycloHexyl Butyrate	Benzyl Dimethyl-Carbinyl Crotonate
cycloHexyl isoButyrate	Phenylethyl Dimethylacrylate
Allyl cycloHexyl Butyrate	Ethyl β -Methyl - β -Ethylglycidate
Geranyl Butyrate	Ethyl β -Methyl - β -Propylglycidate
Geranyl α -Methyl Butyrate	Ethyl β -Methyl - β -iso Amylglycidate
(α β)-cycloGeranyl isoButyrate	Ethyl β -Methyl - β -Nonylglycidate
Tetrahydrogeranyl Butyrate	Methyl-3:4-Dimethyl-2:3-Epoxy-Hex-4-
Tetrahydrogeranyl α -Methylbutyrate	Enoate
Citronellyl Butyrate	Methyl Phenylglycidate
Citronellyl isoButyrate	Ethyl Phenylglycidate
Hydroxycitronellol Butyrate	Methyl β -Methyl- β -Phenylglycidate
Hydroxycitronellol 1-Methylbutyrate	Ethyl Methyl Phenyl Glycidate
Rhodinyl Butyrate	Ethyl β -Tolylglycidate
Rhodinyl isoButyrate	Ethyl-Methyl-p-Tolyl Glycidate
Linalyl Butyrate	Methyl Valerianate
Linalyl isoButyrate	Methyl isoValerianate
Linalyl 1-Methyl Butyrate	Ethyl Valerianate
Neryl Butyrate	Ethyl isoValerianate
Neryl isoButyrate	Propyl Valerianate
Tetrahydrolavendulyl α -Methylbutyrate	Propyl isoValerianate
Terpinyl Butyrate	Allyl Valerianate
Terpinyl isoButyrate	Allyl isoValerianate
Terpinyl α -Methylbutyrate	Butyl Valerianate
Menthyl Butyrate	isoButyl Valerianate
Bornyl Butyrate	Butyl isoValerianate
Perillyl Butyrate	isoButyl isoValerianate
Benzyl Butyrate	Amyl Valerianate
Benzyl isoButyrate	isoAmyl Valerianate
Benzyl α -Methyl Butyrate	isoAmyl isoValerianate
Phenylethyl Butyrate	Hexyl isoValerianate
Phenylethyl isoButyrate	3-Hexenyl Valerianate

3-Hexenyl isoValerianate	Heptyl Heptylate
2-Ethyl Hexyl Valerianate	Octyl Heptylate
Heptyl Valerianate	Methyl Octanoate
Octyl Valerianate	Ethyl Octanoate
Nonyl Valerianate	Allyl Octanoate
Undecelenyl isoValerianate	Butyl Octanoate
Methyl β -Ionyl isoValerianate	Amyl Octanoate
cycloHexyl Valerianate	Heptyl Octanoate
Allyl-cycloHexyl Valerianate	Geranyl Octanoate
Geranyl Valerianate	Linalyl Octanoate
Tetrahydro Geranyl isoValerianate	Nopyl Octanoate
Citronellyl Valerianate	p-Tolyl Octanoate
Citronellyl isoValerianate	Ethyl Citronellate
Rhodinyl Valerianate	isoAmyl Citronellate
Rhodinyl isoValerianate	Ethyl Nonanoate
Linalyl isoValerianate	Allyl Nonanoate
Neryl isoValerianate	Butyl Nonanoate
Menthyl isoValerianate	isoButyl Nonanoate
Perillyl Valerianate	Octyl Nonanoate
Bornyl isoValerianate	Methyl 2-Nonenoate
Benzyl Valerianate	Ethyl 2-Nonenoate
Benzyl isoValerianate	Undecelenyl-2-Nonenoate
Phenylethyl Valerianate	Geranyl 2-Nonenoate
Phenylethyl isoValerianate	cycloHexyl 2-Nonenoate
Phenylpropyl Valerianate	Ethyl Decanoate
Phenylpropyl isoValerianate	isoAmyl Decanoate
Cinnamyl Valerianate	Allyl Undecanoate
Cinnamyl iso Valerianate	Methyl Undecylenate
Phenylmethyl Carbinyl Valerianate	Ethyl Undecylenate
Vetiveryl Valerate	Allyl Undecylenate
Vetiveryl isoValerate	Butyl Undecylenate
Methyl Caproate	Geranyl Undecylenate
Ethyl Caproate	Methyl β -Ionyl Undecylenate
Allyl Caproate	Phenylethyl Undecylenate
Methallyl Caproate	Ethyl Laurate
Butyl Caproate	Terpinyl Laurate
isoButyl Caproate	Ethyl Myristate
isoButyl isoCaproate	isoPropyl Myristate
Amyl Caproate	Ethyl Palmitate
isoAmyl Caproate	Ethyl Stearate
isoAmyl isoCaproate	Ethyl Oleate
Hexyl Caproate	Butyl Oleate
Allyl cycloHexyl Caproate	Methyl Heptine Carbonate
Geranyl Caproate	isoAmyl Heptine Carbonate
Geranyl 2-Hexenoate	Methyl Octine Carbonate
Linalyl Caproate	Ethyl Octine Carbonate
p-Cresyl Caproate	Methyl Decine Carbonate
Phenyl Propyl Caproate	Ethyl Decine Carbonate
Methyl Sorbate	Methyl Benzoate
Ethyl Sorbate	Ethyl Benzoate
Allyl Sorbate	Propyl Benzoate
isoAmyl Sorbate	Butyl Benzoate
Geranyl Sorbate	isoButyl Benzoate
Methyl β -Ionyl Sorbate	isoAmyl Benzoate
Methyl Heptylate	Geranyl Benzoate
Ethyl Heptylate	Linalyl Benzoate
Ethyl Heptylenate	Benzyl Benzoate
Propyl Heptylate	Phenylethyl Benzoate
Allyl Heptylate	Cinnamyl Benzoate
Butyl Heptylate	Methyl Anisate
isoAmyl Heptylate	Ethyl Anisate

Esters (continued)

Salicylic Acid Methyl Ether Methyl Ester	Aurantine
isoButyl Vanillate	Ethyl Anthranilate
Eugenyl Benzoate	Ethyl Methylanthranilate
Methyl Cinnamate	Ethyl Ethylanthranilate
Ethyl Cinnamate	Allyl Anthranilate
Ethyl α -Chlorocinnamate	Butyl Anthranilate
Propyl Cinnamate	isoButyl Anthranilate
isoPropyl Cinnamate	isoButyl N-Methyl-Anthranilate
Allyl Cinnamate	isoButyl N:N-Dimethylantranilate
Butyl Cinnamate	Octyl Anthranilate
isoButyl Cinnamate	Geranyl Anthranilate
Amyl Cinnamate	Linalyl Anthranilate
isoAmyl Cinnamate	Terpinyl Anthranilate
Linalyl Cinnamate	Phenylethyl Anthranilate
Terpinyl Cinnamate	Cinnamyl Anthranilate
Benzyl Cinnamate	Phenylpropyl Anthranilate
Phenylethyl Cinnamate	β -Naphthyl Anthranilate
Hydrocinnamyl Cinnamate	Ethyl Malonate
Cinnamyl Cinnamate	Ethyl Succinate
Cyclohexyl Cinnamate	isoAmyl Succinate
Methyl Salicylate	Benzyl Succinate
Ethyl Salicylate	Ethyl Malate
Allyl Salicylate	Ethyl Tartrate
isoButyl Salicylate	Triethyl Citrate
Amyl Salicylate	Diallyl Azelate
isoAmyl Salicylate	Ethyl Sebacate
Phenyl Salicylate	Ethyl Phthalate
Benzyl Salicylate	Methyl Furoate
Phenyl Ethyl Salicylate	Propyl Furoate
Methyl Anthranilate	Phenylethyl Furoate
N-Methyl Methyl Anthranilate	Ethyl α -Picolinate
Methyl N:N-Dimethylantranilate	

Salts, Buffers and Neutralizing Agents

Ammonia	Potassium Polyphosphates
Ammonium Carbonate	Sodium Acetate
Ammonium Chloride	Sodium Bicarbonate
Calcium Carbonate	Sodium Carbonate
Calcium Chloride	Sodium Chloride
Calcium Acid Phosphate	Sodium Dihydrogen Citrate
Calcium Hydroxide	Disodium Citrate
Calcium Lactate	Trisodium Citrate
Magnesium Carbonate	Sodium Potassium Tartrate
Potassium Carbonate	Disodium Tartrate
Potassium Citrates	Sodium Lactate
Potassium Hydrogen Tartrate (Cream of Tartar)	Sodium Orthophosphates
Potassium Orthophosphates	Sodium Pyrophosphates
Potassium Pyrophosphates	Sodium Polyphosphates

Alternatives to sodium chloride given in the literature for sodium restricted diets include:

Ammonium Glutamate	Potassium Chloride
Potassium Glutamate	

LIST OF SYNTHETIC FLAVOURING SUBSTANCES

Generally recognised as Safe

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(Federal Register Vol. 26 Page 3991)

Acetaldehyde (ethanal).
 Acetoin (acetyl methylcarbinol).
 Aconitic acid (equisetic acid, citridic acid, achilleic acid).
 Anethole (parapropenyl anisole).
 Benzaldehyde (benzoic aldehyde).
 Brominated vegetable oils.
 N-Butyric acid (butanoic acid).
 d- or l-Carvone (carvol).
 Cinnamaldehyde (cinnamic aldehyde).
 Citral (2, 6-dimethyloctadien-2, 6-al-8, geranial, neral).
 Decanal (N-decylaldehyde, capraldehyde, capric aldehyde, caprinaldehyde, aldehyde C-10).
 Diacetyl (2, 3-butanediolone).
 Ethyl acetate.
 Ethyl butyrate (so-called rum ether).
 3-Methyl-3-phenyl glycidic acid ethyl ester (ethyl-methyl-phenyl-glycidate, so-called strawberry aldehyde, C-16 aldehyde).
 Ethyl vanillin.
 Eugenol.
 Geraniol (3, 7-dimethyl-2, 6 and 3, 6-octadien-1-ol).
 Geranyl acetate (geraniol acetate).
 Glycerol (glyceryl) tributyrate (tributylin, butylin).
 Limonene (d-, l-, and dl-).
 Linalool (linalol, 3, 7-dimethyl-1, 6-octadien-3-ol).
 Linalyl acetate (bergamol).
 l-Malic acid.
 Methyl anthranilate (methyl-2-aminobenzoate).
 Piperonal (3, 4-methylenedioxy-benzaldehyde, heliotropin).
 Vanillin.

LIST OF NATURAL FLAVOURING SUBSTANCES

Generally Recognised as Safe

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(Federal Register Vol. 26 Page 5221)

(1) *Spices and other natural seasonings and flavorings (Leaves, Roots, Barks, Berries, Etc.).*

Alfalfa, herb and seed	Geranium
Allspice	Ginger
Ambrette seed	Glycyrrhiza
Angelica	Grains of paradise
Angelica root	Horehound (hoarhound)
Angelica seed	Horseradish
Angostura (cusparia bark)	Hyssop
Anise	Lavender
Anise, star	Licorice
Balm (lemon balm)	Linden flowers
Basil, bush	Mace
Basil, sweet	Marigold, pot
Bay	Marjoram, pot
Calendula	Marjoram, sweet
Camomile (chamomile), English or	Mustard, black or brown
Roman.	Mustard, brown
Camomile (chamomile), German or	Mustard, white or yellow
Hungarian	Nutmeg
Capers	Oregano (oreganum, Mexican oregano,
Capsicum	Mexican sage, origan)
Caraway	Paprika
Caraway, black (black cumin)	Parsley
Cardamom (cardamon)	Pepper, black
Cassia, Chinese	Pepper, cayenne
Cassia, Padang or Batavia	Pepper, red
Cassia, Saigon	Pepper, white
Cayenne pepper	Peppermint
Celery seed	Poppy seed
Chervil	Pot marigold
Chives	Pot marjoram
Cinnamon, Ceylon	Rosemary
Cinnamon, Chinese	Rue
Cinnamon, Saigon	Saffron
Clary (clary sage)	Sage
Clover	Sage, Greek
Cloves	Savory, summer
Coriander	Savory, winter
Cumin (cummin)	Sesame
Cumin, black (black caraway)	Spearmint
Dill	Star anise
Elder flowers	Tarragon
Fennel, common	Thyme
Fennel, sweet (finocchio, Florence fennel)	Thyme, wild or creeping
Fenugreek	Turmeric
Galanga (galangal)	Vanilla
Garlic	Zedoary

(2) *Essential oils, oleoresins (solvent-free), and natural extractives (Including Distillates).*

Alfalfa	Ambrette (seed)
Allspice	Angelica root
Almond, bitter (free from prussic acid)	Angelica seed

- Angelica stem
Angostura (cusparia bark)
Anise
Asafetida
Balm (lemon balm)
Balsam of Peru
Basil
Bay leaves
Bay (myrcia oil)
Bergamot (bergamot orange)
Bitter almond (free from prussic acid)
Bois de rose
Cacao
Camomile (chamomile) flowers, Hungarian)
Camomile (chamomile) flowers, Roman or English
Cananga
Capsicum
Caraway
Cardamon seed (cardamon)
Carob bean
Carrot
Cascarilla bark
Cassia bark, Chinese
Cassia bark, Padang or Batavia
Cassia bark, Saigon
Celery seed
Cherry, wild, bark
Chervil
Chicory
Cinnamon bark, Ceylon
Cinnamon bark, Chinese
Cinnamon bark, Saigon
Cinnamon leaf, Ceylon
Cinnamon leaf, Chinese
Cinnamon leaf, Saigon
Citronella
Citrus peels
Clary (clary sage)
Clove bud
Clove leaf
Clove stem
Clover
Coca (decocainized)
Coffee
Cola nut
Coriander
Corn silk
Cumin (cummin)
Curacao orange peel (orange, bitter peel)
Cusparia bark
Dandelion
Dandelion root
Dill
Dog grass (quackgrass, triticum)
Elder flowers
Estragole (esdragol, esdragon, tarragon)
Estragon (tarragon)
Fennel, sweet
Fenugreek
Galanga (galangal)
Garlic
Geranium
Geranium, East Indian
Geranium, rose
Ginger
Glycyrrhiza
Glycyrrhizin, ammoniated
Grapefruit
Guava
Hickory bark
Horehound (hoarhound)
Hops
Horsemint
Hyssop
Immortelle
Jasmine
Juniper (berries)
Kola nut
Laurel berries
Laurel leaves
Lavender
Lavender, spike
Lavandin
Lemon
Lemon balm (see balm)
Lemon grass
Lemon peel
Licorice
Lime
Linden flowers
Locust bean
Lupulin
Mace
Malt (extract)
Mandarin
Marjoram, sweet
Mate
Melissa (see balm)
Menthol
Menthylacetate
Molasses (extract)
Mustard
Naringin
Neroli, bigarade
Nutmeg
Onion
Orange, bitter, flowers
Orange, bitter peel
Orange leaf
Orange, sweet
Orange, sweet, flowers
Orange, sweet, peel
Organum
Palmarosa
Paprika
Parsley
Pepper, black
Pepper, white
Peppermint
Peruvian balsam

Essential oils, etc. (continued)

Petitgrain	Savory, winter
Petitgrain lemon	Schinus molle
Petitgrain mandarin or tangerine	Sloe berries (blackthorn berries)
Pimenta	Spearmint
Pimenta leaf	Spike lavender
Pipsissewa leaves	Tamarind
Pomegranate	Tangerine
Prickly ash bark	Tannic acid
Rose absolute	Tarragon
Rose (otto of roses, attar of roses)	Tea
Rose buds	Thyme
Rose flowers	Thyme, white
Rose fruits (hips)	Thyme, wild or creeping
Rose geranium	Triticum (see dog grass)
Rose leaves	Tuberose
Rosemary	Turmeric
Rue	Vanilla
Saffron	Violet flowers
Sage	Violet leaves
Sage, Greek	Violet leaves absolute
Sage, Spanish	Wild cherry bark
St. John's bread	Ylang-ylang
Savory, summer	Zedoary bark

(3) Natural substances used in conjunction with spices and other natural seasonings and flavorings.

Algae, brown (kelp)	Dulse
Algae, red	

(4) Natural extractives (solvent-free) used in conjunction with spices, seasonings, and flavorings.

Algae, brown	Peach kernel (persic oil)
Algae, red	Peanut stearine
Apricot kernel (persic oil)	Persic oil (see apricot kernel and peach kernel)
Dulse	Quince seed
Kelp (see algae, brown)	

(5) Miscellaneous.

Ambergris	Cognac oil, white and green
Castoreum	Musk (Tonquin musk)
Civet (zibeth, zibet, zibetum)	

LIST OF SYNTHETIC FLAVOURING SUBSTANCES

Contained in a Permitted List

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Acetal; acetaldehyde diethyl acetal	Benzoin; 2-hydroxy-2-phenylacetophenone
Acetaldehyde phenethyl propyl acetal	Benzophenone; diphenylketone
Acetanilide; 4'-methoxyacetophenone	Benzyl acetate
Adipic acid; 1, 4-butanedicarboxylic acid	Benzyl acetoacetate
Alginates, sodium, calcium and ammonium	Benzyl alcohol
Allyl anthranilate	Benzyl benzoate
Allyl cinnamate	Benzyl butyrate
Allyl cyclohexanecarboxylate	Benzyl cinnamate
Allyl cyclohexanecarboxylate	Benzyl 2, 3-dimethylcrotonate; benzyl methyl tiglate
Allyl cyclohexanecarboxylate	Benzyl formate
Allyl cyclohexanecarboxylate	3-Benzyl-4-heptanone; benzyl dipropyl ketone
Allyl disulfide	Benzyl isobutyrate
Allyl 2-ethylbutyrate	Benzyl isovalerate
Allyl a-ionone; 1-(2, 6, 6-trimethyl-2-cyclohexen-1-yl)-1, 6-heptadiene-3-one	Benzyl mercaptan; α -toluenethiol
Allyl isothiocyanate; mustard oil	Benzyl methoxyethyl acetal; acetaldehyde benzyl β -methoxyethyl acetal
Allyl isovalerate	Benzyl phenylacetate
Allyl mercaptan; 2-propene-1-thiol	Benzyl propionate
Allyl nonanoate	Benzyl salicylate
Allyl octanoate	Birch tar oil
Allyl phenoxyacetate	Borneol; d-camphanol
Allyl phenylacetate	Bornyl acetate
Allyl propionate	Bornyl formate
Allyl sorbate; allyl 2, 4-hexadienoate	Bornyl isovalerate
Allyl sulfide	Bornyl valerate
Allyl tiglate; allyl trans-2-methyl-2-butenate	2-Butanone; methyl ethyl ketone
Allyl 10-undecenoate	Butter acids
Ammonium isovalerate	Butter esters
Ammonium sulfide	Butter starter distillate
Amyl alcohol; pentyl alcohol	Butyl acetate
Amyl butyrate	Butyl acetoacetate
α -Amylcinnamaldehyde	Butyl alcohol; 1-butanol
α -Amylcinnamaldehyde dimethyl acetal	Butyl anthranilate
α -Amylcinnamyl acetate	Butyl butyrate
α -Amylcinnamyl alcohol	Butyl butyrylacetate; lactic acid, butyl ester, butyrate
α -Amylcinnamyl formate	α -Butylcinnamaldehyde
α -Amylcinnamyl isovalerate	Butyl cinnamate
Amyl formate	Butyl 2-decenoate
Amyl heptanoate	Butyl formate
Amyl hexanoate	Butyl heptanoate
Amyl octanoate	Butyl hexanoate
Anisole; methoxybenzene	Butyl p-hydroxybenzoate
Anisyl acetate	Butyl isobutyrate
Anisyl alcohol; p-methoxybenzyl alcohol	Butyl isovalerate
Anisyl butyrate	Butyl lactate
Anisyl formate	Butyl laurate
Anisyl propionate	Butyl levulinate
Benzaldehyde dimethyl acetal	Butyl phenylacetate
Benzaldehyde glyceryl acetal; 2-phenyl-m-dioxan-5-ol	Butyl propionate
Benzaldehyde propylene glycol acetal; 4-methyl-2-phenyl-m-dioxolane	Butyl stearate

Synthetic Flavouring Substances (continued)

Butyl sulfide	α -Decalactone; 5-hydroxy-decanoic acid, α -lactone
Butyl 10-undecenoate	Decanal dimethyl acetal
Butyl valerate	1-Decanol; decylic alcohol
Butyraldehyde	2-Decenal
Butyrin; tributyrin; glyceryl tributyrate	Decyl acetate
Cadinene	Decyl butyrate
Camphene: 2, 2-dimethyl-3-methylenenorbornane	Decyl propionate
d-Camphor	Dibenzyl ether
Carvacrol; 2-p-cymenol	4, 4-Dibutyl- α -butyrolactone; 4, 4-dibutyl-4-hydroxy-butyric acid, γ -lactone
Carveol; p-mentha-6, 8-dien-2-ol	Dibutyl sebacate
Carvacryl ethyl ether; 2-ethoxy-p-cymene	Diethyl malate
4-Carvomenthenol; 1-p-menthen-4-ol; 4-terpinenol	Diethyl sebacate
Carvyl acetate	Diethyl succinate
Carvyl propionate	Diethyl tartrate
β -Caryophyllene	Dihydrocarveol; 8-p-menthen-2-ol; 6-methyl-3-isopropenylcyclohexanol
Cinnamaldehyde ethylene glycol acetal	Dihydrocarvyl acetate
Cinnamic acid	m-Dimethoxybenzene
Cinnamyl acetate	p-Dimethoxybenzene; dimethyl hydroquinone
Cinnamyl alcohol; 3-phenyl-2-propen-1-ol	2, 4-Dimethylacetophenone
Cinnamyl anthranilate	α , α -Dimethylbenzyl isobutyrate; phenyldimethylcarbonyl isobutyrate
Cinnamyl butyrate	2, 6-Dimethyl-5-heptenal
Cinnamyl cinnamate	2, 6-Dimethyl octanal; isodecylaldehyde
Cinnamyl formate	3, 7-Dimethyl-octanol; tetrahydrogeraniol
Cinnamyl isobutyrate	α , α -Dimethylphenethyl acetate; benzylpropyl acetate
Cinnamyl isovalerate	benzyl dimethylcarbonyl acetate
Cinnamyl phenylacetate	α , α -Dimethylphenethyl alcohol; dimethylbenzyl carbonyl
Cinnamyl propionate	α , α -Dimethylphenethyl butyrate; benzyl dimethylcarbonyl butyrate
Citral diethyl acetal; 3, 7-dimethyl-2, 6-octadienal diethyl acetal	α , α -Dimethylphenethyl formate; benzyl dimethylcarbonyl formate
Citral dimethyl acetal; 3, 7-dimethyl-2, 6-octadienal dimethyl acetal	Dimethyl succinate
Citronellal; 3, 7-dimethyl-6-octenal; rhodinal	1, 3-Diphenyl-2-propanone; dibenzyl ketone
Citronellol; 3, 7-dimethyl-6-octen-1-ol; d-citronellol	γ -Dodecalactone; 4-hydroxydodecanoic acid, γ -lactone
Citronelloxyacetaldehyde	2-Dodecenal
Citronellyl acetate	Estragole
Citronellyl butyrate	p-Ethoxybenzaldehyde
Citronellyl formate	Ethyl acetoacetate
Citronellyl isobutyrate	Ethyl 2-acetyl-3-phenylpropionate; ethylbenzyl acetoacetate
Citronellyl phenylacetate	Ethyl aconitate, mixed esters
Citronellyl propionate	Ethyl acrylate
Citronellyl valerate	Ethyl p-anisate
p-Cresol	Ethyl anthranilate
Cuminaldehyde; cuminal; p-isopropyl benzaldehyde	Ethyl benzoate
Cyclohexanecetic acid	Ethyl benzoylacetate
Cyclohexanecethyl acetate	α -Ethylbenzyl butyrate; α -phenylpropyl butyrate
Cyclohexyl acetate	2-Ethylbutyl acetate
Cyclohexyl anthranilate	2-Ethylbutyraldehyde
Cyclohexyl butyrate	2-Ethylbutyric acid
Cyclohexyl cinnamate	Ethyl cinnamate
Cyclohexyl formate	Ethyl cyclohexanepropionate
Cyclohexyl isovalerate	
Cyclohexyl propionate	
p-Cymene	
α -Decalactone; 4-hydroxy-decanoic acid, α -lactone	

Synthetic Flavouring Substances (continued)

Ethyl decanoate	Guaiacol; o-methoxyphenol
Ethyl formate	Guaiacyl phenylacetate
Ethyl 2-furanpropionate	γ -Heptalactone; 4-hydroxyheptanoic acid
4-Ethylguaiacol; 4-ethyl-2-methoxyphenol	γ -lactone
Ethyl heptanoate	Heptanal; enanthaldehyde
2-Ethyl-2-heptenal; 2-ethyl-3-butylacrolein	Heptanal dimethyl acetal
Ethyl hexanoate	Heptanal 1, 2-glyceryl acetal
Ethyl isobutyrate	2, 3-Heptanedione; acetyl valeryl
Ethyl isovalerate	2-Heptanone; methyl amyl ketone
Ethyl lactate	3-Heptanone; ethyl butyl ketone
Ethyl laurate	4-Heptanone; dipropyl ketone
Ethyl levulinate	Heptyl acetate
Ethyl myristate	Heptyl alcohol; enanthic alcohol
Ethyl nitrite	Heptyl butyrate
Ethyl nonanoate	Heptyl cinnamate
Ethyl 2-nonynoate; ethyl octyne carbonate	Heptyl formate
Ethyl octanoate	Heptyl isobutyrate
Ethyl oleate	Heptyl octanoate
Ethyl phenylacetate	1-Hexadecanol; cetyl alcohol
Ethyl 4-phenylbutyrate	ω -6-Hexadecenolactone; 16-hydroxy-6-hexadecenoic acid, ω -lactone;
Ethyl 3-phenylglycidate	ambrettolide
Ethyl 3-phenylpropionate; ethyl hydrocinnamate	γ -Hexalactone; 4-hydroxyhexanoic acid, γ -lactone; tonkalide
Ethyl propionate	Hexanal; caproic aldehyde
Ethyl pyruvate	2, 3-Hexanedione; acetyl butyryl
Ethyl salicylate	Hexanoic acid; caproic acid
Ethyl sorbate; ethyl 2,4-hexadienoate	2-Hexenal
Ethyl tiglate; ethyl trans-2-methyl-2-butenate	2-Hexen-1-ol
Ethyl 10-undecenoate	3-Hexen-1-ol; leaf alcohol
Ethyl valerate	2-Hexen-1-yl acetate
Eucalyptol; 1, 8-epoxy-p-menthane; cineole	Hexyl acetate
Eugenyl benzoate	2-Hexyl-4-acetoxytetrahydrofuran
Eugenyl formate	Hexyl alcohol
Eugenyl methyl ether; 4-allylveratrole; methyl eugenol	Hexyl butyrate
Farnesol; 3, 7, 11-trimethyl-2, 6, 10-dodecatrien-1-ol	α -Hexylcinnamaldehyde
d-Fenchone; d-1, 3, 3-trimethyl-2-norbornanone	Hexyl formate
Fenchyl alcohol; 1, 3, 3-trimethyl-2-norbornanol	Hexyl hexanoate
Formic acid	Hexyl octanoate
(2-Furyl)-2-propanone; furyl acetone	Hexyl propionate
1-Furyl-2-propanone; furyl acetone	Hydroxycitronellal; 3, 7-dimethyl-7-hydroxyoctanal
Fusel oil, refined (mixed amyl alcohols)	Hydroxycitronellal diethyl acetal
Geranyl acetoacetate; trans-3, 7-dimethyl-2, 6-octadien-1-yl acetoacetate	Hydroxycitronellal dimethyl acetal
Geranyl benzoate	Hydroxycitronellol; 3, 7-dimethyl-1, 7-octanediol
Geranyl butyrate	N - (4-Hydroxy-3-methoxybenzyl) - nonanamide; pelargonyl vanillylamide
Geranyl formate	5-Hydroxy-4-octanone; butyrolin
Geranyl hexanoate	4-(p-Hydroxyphenyl)-2-butanone; p-hydroxybenzyl acetone
Geranyl isobutyrate	Indole
Geranyl isovalerate	α -Ionone; 4-(2, 6, 6-trimethyl-2-cyclohexen-1-yl)-3-buten-2-one
Geranyl phenylacetate	β -Ionone; 4-(2, 6, 6-trimethyl-1-cyclohexen-1-yl)-3-buten-2-one
Geranyl propionate	α -Irene; 4-(2, 5, 6, 6-tetramethyl-2-cyclohexene-1-yl)-3-buten-2-one; 6-methyl ionone
Glucose pentaacetate	Isoamyl acetate
Glyceryl monooleate	

Synthetic Flavouring Substances (continued)

Isoamyl alcohol; isopentyl alcohol; 3-methyl-1-butanol	p-Isopropylbenzyl alcohol; cuminic alcohol; p-cymen-7-ol
Isoamyl benzoate	Isopropyl butyrate
Isoamyl butyrate	Isopropyl cinnamate
Isoamyl cinnamate	Isopropyl formate
Isoamyl formate	Isopropyl hexanoate
Isoamyl 2-furanbutyrate; a-isoamyl furfurylpropionate	Isopropyl isobutyrate
Isoamyl 2-furanpropionate; a-isoamyl furfurylacetate	Isopropyl isovalerate
Isoamyl hexanoate	p-Isopropylphenylacetaldehyde; p-cymen-7-carboxaldehyde
Isoamyl isovalerate	Isopropyl phenylacetate
Isoamyl laurate	3-(p-Isopropylphenyl)-propionaldehyde; p-isopropylhydrocinnamaldehyde; cumyl acetaldehyde.
Isoamyl nonanoate	Isopropyl propionate
Isoamyl octanoate	Isopulegol; p-menth-8-en-3-ol
Isoamyl phenylacetate	Isopulegone; p-menth-8-en-3-one
Isoamyl propionate	Isopulegyl acetate
Isoamyl pyruvate	Isoquinoline
Isoamyl salicylate	Isovaleric acid
Isoborneol	Lauric aldehyde; dodecanal
Isobornyl acetate	Lauryl acetate
Isobornyl formate	Lauryl alcohol; 1-dodecanol
Isobornyl isovalerate	Levulinic acid
Isobornyl propionate	Linalyl anthranilate; 3, 7-dimethyl-1, 6-octadien-3-yl anthranilate
Isobutyl acetate	Linalyl benzoate
Isobutyl acetoacetate	Linalyl butyrate
Isobutyl alcohol	Linalyl formate
Isobutyl angelate; isobutyl cis-2-methyl-2-butenate	Linalyl hexanoate
Isobutyl anthranilate	Linalyl isobutyrate
Isobutyl benzoate	Linalyl isovalerate
Isobutyl butyrate	Linalyl octanoate
Isobutyl cinnamate	Linalyl propionate
Isobutyl formate	Maltol; 3-hydroxy-2-methyl-4H-pyran-4-one
Isobutyl 2-furanpropionate	p-Mentha-1, 8-dien-7-ol; perillyl alcohol
Isobutyl heptanoate	Menthyl acetate; p-menth-3-yl acetate
Isobutyl hexanoate	Menthyl isovalerate; p-menth-3-yl isovalerate
Isobutyl isobutyrate	o-Methoxybenzaldehyde
a-Isobutylphenethyl alcohol; isobutyl benzyl carbinol; 4-methyl-1-phenyl-2-pentanol	p-Methoxybenzaldehyde; p-anisaldehyde
Isobutyl phenylacetate	o-Methoxycinnamaldehyde
Isobutyl propionate	2-Methoxy-4-methylphenol; 4-methyl-guaiacol; 2-methoxy-p-cresol
Isobutyl salicylate	4-(p-Methoxyphenyl)-2-butanone; anisyl acetone
Isobutyraldehyde	1-(p-Methoxyphenyl)-1-penten-3-one; a-methylanisylidene acetone; ethone
Isobutyric acid	1-(p-Methoxyphenyl)-2-propanone; anisyl methyl ketone; anisic ketone
Isoeugenol; 2-methoxy-4-propenylphenol	2-Methoxy-4-vinylphenol; p-vinylguaiacol
Isoeugenyl acetate	Methyl acetate
Isoeugenyl ethyl ether; 2-ethoxy-5-propenylanisole; ethyl isoeugenol	4-Methylacetophenone; p-methylacetophenone; methyl p-tolyl ketone
Isoeugenyl formate	2-Methylallyl butyrate; 2-methyl-2-propen-1-yl butyrate
Isoeugenyl methyl ether; 4-propenylveratrole; methyl isoeugenol	
Isoeugenyl phenylacetate	
a-Isomethylionone; 4-(2, 6, 6-trimethyl-2-cyclo-hexen-1-yl)-3-methyl-3-buten-2-one; methyl γ -ionone	
Isopropyl acetate	
p-Isopropylacetophenone	
Isopropyl benzoate	

Synthetic Flavouring Substances (continued)

- Methyl anisate
- o-Methylanisole; o-cresyl methyl ether
- p-Methylanisole; p-cresyl methyl ether; p-methoxytoluene
- Methyl benzoate
- a-Methylbenzyl acetate; styrallyl acetate
- a-Methylbenzyl alcohol; styrallyl alcohol
- a-Methylbenzyl butyrate; styrallyl butyrate
- a-Methylbenzyl isobutyrate; styrallyl isobutyrate
- a-Methylbenzyl formate; styrallyl formate
- a-Methylbenzyl propionate; styrallyl propionate
- Methyl p-tert-butylphenylacetate
- 2-Methylbutyraldehyde; methyl ethyl acetaldehyde
- 3-Methylbutyraldehyde; isovaleraldehyde
- Methyl butyrate
- 2-methylbutyric acid
- a-Methylcinnamaldehyde
- Methyl cinnamate
- Methylcyclopentenolone; 3-methylcyclopentane-1, 2-dione
- Methyl heptanoate
- 2-Methylheptanoic acid
- 6-Methyl-5-hepten-2-one
- Methyl hexanoate
- Methyl 2-hexenoate
- Methyl p-hydroxybenzoate; methylparaben
- Methyl a-ionone; 5-(2, 6, 6-trimethyl-2-cyclohexen-1-yl)-4-penten-3-one
- Methyl β -ionone; 5-(2, 6, 6-trimethyl-1-cyclohexen-1-yl)-4-penten-3-one
- Methyl β -ionone; 5-(2, 6, 6-trimethyl-3-cyclohexen-1-yl)-4-penten-3-one
- Methyl isobutyrate
- 2-Methyl-3-(p-isopropylphenyl)-propionaldehyde; a-methyl-p-isopropylhydrocinnamaldehyde; cyclamen aldehyde
- Methyl isovalerate
- Methyl laurate
- Methyl mercaptan; methanethiol
- Methyl o-methoxybenzoate
- Methyl N-methylantranilate; dimethyl anthranilate
- Methyl 2-methylthiopropionate
- Methyl 4-methylvalerate
- Methyl myristate
- Methyl- β -naphthyl ketone; 2-acetonaphthone
- Methyl nonanoate
- Methyl 2-nonenate
- Methyl 2-nonynoate; methyloctyne carbonate
- 2-Methyloctanal; methyl hexyl acetaldehyde
- Methyl octanoate
- Methyl 2-octynoate; methyl heptine carbonate
- 4-Methyl-2, 3-pentanedione; acetyl isobutyryl
- 4-Methyl-2-pentenone; methyl isobutyl ketone
- β -Methylphenethyl alcohol; hydratropyl alcohol
- Methyl phenylacetate
- 3-Methyl-4-phenyl-3-butene-2-one
- 2-Methyl-4-phenyl-2-butyl acetate; dimethylphenylethyl carbonyl acetate
- 2-Methyl-4-phenyl-2-butyl isobutyrate; dimethylphenyl-ethylcarbonyl isobutyrate
- 3-Methyl-2-phenylbutyraldehyde; a-isopropyl phenylacetaldehyde
- Methyl 4-phenylbutyrate
- 4-Methyl-1-phenyl-2-pentanone; benzyl isobutyl ketone
- Methyl 3-phenylpropionate; methyl hydrocinnamate
- Methyl propionate
- Methyl sulfide
- 2-Methylthiopropionaldehyde; methional
- 2-Methyl-3-tolylpropionaldehyde, mixed o-, m-, p-
- 2-Methylundecanal; methyl nonyl acetaldehyde
- Methyl 9-undecenoate
- Methyl 2-undecynoate; methyl decyne carbonate
- Methyl valerate
- 2-Methylvaleric acid
- Myrcene; 7-methyl-3-methylene-1, 6-octadiene
- Myristaldehyde; tetradecanal
- d-Neomenthol; 2-isobutyl-5-methylcyclohexanol
- Nerol; cis-3, 7-dimethyl-2, 6-octadien-1-ol
- Nerolidol; 3,7,11-trimethyl-1, 6, 10-dodecatrien-3-ol
- Neryl acetate
- Neryl butyrate
- Neryl formate
- Neryl isobutyrate
- Neryl isovalerate
- Neryl propionate
- 2, 6-Nonadien-1-ol
- γ -Nonalactone; 4-hydroxynonanoic acid, γ -lactone; aldehyde C-18
- Nonanal; pelargonic aldehyde
- 1, 3-Nonanediol acetate, mixed esters
- Nonanoic acid; pelargonic acid
- 2-Nonanone; methylheptyl ketone
- 3-Nonanon-1-yl acetate; 1-hydroxy-3-nonanone acetate
- Nonyl acetate
- Nonyl alcohol; 1-nonanol
- Nonyl octanoate
- Nonyl isovalerate
- γ -Octalactone; 4-hydroxyoctanoic acid, γ -lactone

Synthetic Flavouring Substances (continued)

- Octanal; caprylaldehyde
- Octanal dimethyl acetal
- Octanoic acid; caprylic acid
- 1-Octanol; octyl alcohol
- 2-Octanol
- 2-Octanone; methyl hexyl ketone
- 3-Octanone; ethyl amyl ketone
- 3-Octanon-1-ol
- 1-Octen-3-ol; amyl vinyl carbinol
- Octyl acetate
- Octyl butyrate
- Octyl formate
- Octyl heptanoate
- Octyl isobutyrate
- Octyl isovalerate
- Octyl octanoate
- Octyl phenylacetate
- Octyl propionate
- ω -Pentadecalactone; 15-hydroxypentadecanoic acid, ω -lactone; pentadecanolide; angelica lactone
- 2, 3-Pentanedione; acetyl propionyl
- 2-Pentanone; methyl propyl ketone
- 4-Pentenoic acid
- α -Phellandrene; p-mentha-1, 5-diene
- Phenethyl acetate
- Phenethyl alcohol; -phenylethyl alcohol
- Phenethyl anthranilate
- Phenethyl benzoate
- Phenethyl butyrate
- Phenethyl cinnamate
- Phenethyl formate
- Phenethyl isobutyrate
- Phenethyl isovalerate
- Phenethyl phenylacetate
- Phenethyl propionate
- Phenethyl salicylate
- Phenethyl senecioidate; phenethyl 3, 3-dimethylacrylate
- Phenethyl tiglate
- Phenoxyacetic acid
- 2-Phenoxyethyl isobutyrate
- Phenylacetaldehyde; α -toluic aldehyde
- Phenylacetaldehyde 2, 3-butylene glycol acetal
- Phenylacetaldehyde dimethyl acetal
- Phenylacetaldehyde glyceryl acetal
- Phenylacetic acid; α -toluic acid
- 4-Phenyl-2-butanol; phenylethyl methyl carbinol
- 4-Phenyl-3-buten-2-ol; methyl styryl carbinol
- 4-Phenyl-3-buten-2-one
- 4-Phenyl-2-butyl acetate; pbenylethyl methyl carbonyl acetate
- 1-Phenyl-3-methyl-3-pentanol; pbenylethyl methyl ethyl carbinol
- 1-Phenyl-1-propanol; phenylethyl carbinol
- 3-Phenyl-1-propanol; hydrocinnamyl alcohol
- 2-Phenylpropionaldehyde; hydratrop-aldehyde
- 3-Phenylpropionaldehyde; hydrocinnamaldehyde
- 2-Phenylpropionaldehyde dimethyl acetate; hydratropic aldehyde dimethyl acetal
- 3-Phenylpropionic acid; hydrocinnamic acid
- 3-Phenylpropyl acetate
- 2-Phenylpropyl butyrate
- 3-Phenylpropyl cinnamate
- 3-Phenylpropyl formate
- 3-Phenylpropyl hexanoate
- 2-Phenylpropyl isobutyrate
- 3-Phenylpropyl isobutyrate
- 3-Phenylpropyl isovalerate
- 3-Phenylpropyl propionate
- 2-(3-Phenylpropyl)-tetrahydrofuran
- α -Pinene; 2-pinene
- β -Pinene; 2(10)-pinene
- Pine tar oil
- Piperidine
- Piperine
- d-Piperitone; p-menth-1-en-3-one
- Piperonyl acetate; heliotropepyl acetate
- Piperonyl isobutyrate
- Polylimonene
- Polysorbate 20; polyoxyethylene (20) sorbitan Monolaurate
- Polysorbate 60; polyoxyethylene (20) sorbitan monostearate
- Polysorbate 80
- Potassium acetate
- Propenylguaiethol; 6-ethoxy-m-anol
- Propionaldehyde
- Propyl acetate
- Propyl alcohol; 1-propanol
- p-Propyl anisole; dihydroanethole
- Propyl benzoate
- Propyl butyrate
- Propyl cinnamate
- Propyl disulfide
- Propyl formate
- Propyl 2-furanacrylate
- Propyl heptanoate
- Propyl hexanoate
- Propyl p-hydroxybenzoate; propylparaben
- Propyl isobutyrate
- Propyl isovalerate
- Propyl mercaptan
- α -Propylphenethyl alcohol
- Propyl phenylacetate
- Propyl propionate
- Pulegone; p-menth-4(8)-en-3-one
- Pyridine
- Pyroligneous acid extract
- Pyrualdehyde
- Pyruvic acid
- Rhodinol; 3, 7-dimethyl-7-octen-1-ol; citronellol

Synthetic Flavouring Substances (continued)

Rhodinyl acetate	Tolualdehyde glyceryl acetal, mixed o, m, p
Rhodinyl butyrate	Tolualdehydes, mixed o, m, p
Rhodinyl formate	p-Tolylacetaldehyde
Rhodinyl isobutyrate	o-Tolyl acetate; o-cresyl acetate
Rhodinyl isovalerate	p-Tolyl acetate; p-cresyl acetate
Rhodinyl phenylacetate	4-(p-Tolyl)-2-butanone; p-methylbenzylacetone
Rhodinyl propionate	p-Tolyl isobutyrate
Rum ether; ethyl oxyhydrate	p-Tolyl laurate
Salicylaldehyde	p-Tolyl phenylacetate
Santalol, a and	2-(p-Tolyl)-propionaldehyde; p-methylhydratropic aldehyde
Santalyl acetate	Tributyl acetyl citrate
Santalyl phenylacetate	2-Tridecenal
Skatole	2, 3-Undecadione; acetyl nonyl
Sucrose octaacetate	β -Undecalactone; 4-hydroxyundecanoic acid β -lactone; peach aldehyde; aldehyde C-14
α -Terpineol; p-menth-1-en-8-ol	Undecenal
Terpinolene; p-menth-1, 4 (8)-diene	2-Undecanone; methyl nonyl ketone
Terpinyl acetate	9-Undecenal; undecenoic aldehyde
Terpinyl anthranilate	10-Undecenal
Terpinyl butyrate	10-Undecen-1-yl acetate
Terpinyl cinnamate	Undecyl alcohol
Terpinyl formate	Valeraldehyde; pentanal
Terpinyl isobutyrate	Valeric acid; pentanoic acid
Terpinyl isovalerate	Vanillin acetate; acetyl vanillin
Terpinyl propionate	Veratraldehyde
Tetrahydrofurfuryl acetate	Zingerone; 4-(4-hydroxy-3-methoxyphenyl)-2-butanone
Tetrahydrofurfuryl alcohol	
Tetrahydrofurfuryl butyrate	
Tetrahydrofurfuryl propionate	
Tetrahydro-pseudo-ionone; 6, 10-dimethyl-9-undecen-2-one	
Tetrahydrolineolol; 3, 7-dimethyloctan-3-ol	
2-Thienyl mercaptan; 2-thienylthiol	
Thymol	

LIST OF NATURAL FLAVOURING SUBSTANCES

Contained in a Proposed Permitted List

Issued by the United States Food and Drugs Administration

(Federal Register Vol. 29 Page 7427)

<i>Common name</i>	<i>Limitations</i>
Agaric, white	In alcoholic beverages only.
Althea root and flowers	
Amyris (West Indian sandalwood)	
Arnica flowers	In alcoholic beverages only.
Artemisia (wormwood)	In alcoholic beverages only; not more than 10 p.p.m. thujone in the finished beverage.
Artichoke leaves	In alcoholic beverages only.
Beeswax, white (Cire d'abeille)	
Benzoin resin	
Blackberry bark	
Boronia flowers	
Buchu leaves	
Buckbean leaves	In alcoholic beverages only.
Cajeput	
Calumbaroot	In alcoholic beverages only
Camphor tree	Safrole free.
Cascara sagrada	
Cassie flowers	
Catechu, black	
Cedar, white (arbor-vitae), leaves and twigs	Not more than 10 p.p.m. thujone in the finished food.
Centaury	In alcoholic beverages only.
Cherry pits	Not to exceed 25 p.p.m. prussic acid.
Cherry-laurel leaves	Not to exceed 25 p.p.m. prussic acid.
Chirata	In alcoholic beverages only.
Cinchona, red, bark	In beverages only; not more than 83 p.p.m. total cinchona alkaloids in finished beverage.
Cinchona, yellow, bark	In beverages only; not more than 83 p.p.m. total cinchona alkaloids in finished beverage.
Copaiba	
Costmary	In alcoholic beverages only.
Costus root	
Cubeb	
Currant, black, buds and leaves	
Davana	
Dill, Indian	
Dittany (fraxinella) roots	In alcoholic beverages only.
Dittany of Crete	
Elder tree leaves	In alcoholic beverages only; not to exceed 25 p.p.m. prussic acid.
Elecampane rhizome and roots	In alcoholic beverages only.
Elemi	
Erigeron	
Eucalyptus globulus leaves	
Fir ("pine") needles and twigs	
Fir, balsam, needles and twigs	
Galanga, greater	In alcoholic beverages only.
Galbanum	
Gambir (catechu, pale)	
Genet flowers	
Gentian rhizome and roots	
Gentian, stemless	In alcoholic beverages only.
Germander, chamaedrys	Do.

<i>Common name</i>	<i>Limitations</i>
Germander, golden	In alcoholic beverages only.
Guaiac	
Guarana	
Haw, black, bark	
Hemlock needles and twigs	
Hyacinth flowers	
Iceland moss	In alcoholic beverages only.
Imperatoria	Do.
Iva	Do.
Labdanum	
Lemon-verbena	In alcoholic beverages only.
Linaloe wood	
Linden leaves	In alcoholic beverages only.
Lovage	
Maidenhair fern	In alcoholic beverages only.
Maple, mountain	
Mimosa (black wattle) flowers	
Mullein flowers	In alcoholic beverages only.
Myrrh	
Myrtle leaves	In alcoholic beverages only.
Oak, English, wood	Do.
Oak, white, chips	
Oak moss	Not more than 10 p.p.m. thujone in the finished food.
Olibanum	
Orris root	
Pansy	In alcoholic beverages only.
Patchouly	
Peach leaves	In alcoholic beverages only; not to exceed 25 p.p.m. prussic acid.
Pennyroyal, American	
Pennyroyal, European	In alcoholic beverages only.
Pine, dwarf, needles and twigs	
Pine, Scotch, needles and twigs	
Pine, white, bark	In alcoholic beverages only.
Poplar buds	Do.
Quassia	
Quebracho bark	
Rhatany root	
Rhubarb root	
Rhubarb, garden root	In alcoholic beverages only.
Roselle	Do.
St. Johnswort	Do.
Sandalwood, white (yellow, or East Indian)	
Sarsaparilla	
Sassafras leaves	Safrole free.
Senna, Alexandria	
Serpentaria (Virginia snakeroot)	In alcoholic beverages only.
Simaruba bark	Do.
Snakeroot, Canadian (wild ginger)	
Spruce needles and twigs	
Storax (styrax)	
Tagetes (marigold)	
Thistle, blessed (holy thistle)	In alcoholic beverages only.
Thymus capitatus (Spanish "organum").	
Tolu	
Turpentine	
Valerian rhizome and roots	
Veronica	In alcoholic beverages only.

*Common name**Limitations*

Vervain, European
Vetiver
Violet Swiss
Woodruff, sweet
Yarrow

In alcoholic beverages only.

In alcoholic beverages only.

Do.

In beverages only; not more than 10 p.p.m.
thujone in the finished beverage.

Yucca, Joshua-tree
Yucca, Mohave

**LIST OF ESSENCES AND FLAVOURS FOR WHICH A STANDARD
IS LAID DOWN IN THE CANADIAN FEDERAL FOOD AND
DRUG LAWS**

Almond Essence, Almond Extract, Almond Flavour
 Anise Essence, Anise Extract, Anise Flavour
 Celery Seed Essence, Celery Seed Extract, Celery Seed Flavour
 Cassia Essence, Cassia Extract, Cassia Cinnamon Essence, Cassia Cinnamon Extract,
 Cassia Flavour, Cassia Cinnamon Flavour
 Ceylon Cinnamon Essence, Ceylon Cinnamon Extract, Ceylon Cinnamon Flavour
 Clove Essence, Clove Extract, Clove Flavour
 Ginger Essence, Ginger Extract, Ginger Flavour
 Lemon Essence, Lemon Extract, Lemon Flavour
 Nutmeg Essence, Nutmeg Extract, Nutmeg Flavour
 Orange Essence, Orange Extract, Orange Flavour
 Peppermint Essence, Peppermint Extract, Peppermint Flavour
 Rose Essence, Rose Extract, Rose Flavour
 Savory Essence, Savory Extract, Savory Flavour
 Spearmint Essence, Spearmint Extract, Spearmint Flavour
 Sweet Basil Essence, Sweet Basil Extract, Sweet Basil Flavour
 Sweet Marjoram Essence, Sweet Marjoram Extract, Marjoram Essence, Marjoram
 Extract, Sweet Marjoram Flavour, Marjoram Flavour
 Thyme Essence, Thyme Extract, Thyme Flavour
 Vanilla Extract, Vanilla Essence, Vanilla Flavour
 Wintergreen Essence, Wintergreen Extract, Wintergreen Flavour

FEDERAL REPUBLIC OF GERMANY
LIST OF FLAVOURING SUBSTANCES IN COMMON USE IN FOOD
 which do not come within the definition of "Foreign Substance"

Fruits and Spices

Almonds, sweet and bitter	Honey
Angostura bark	Horse-radish
Anis seed	Juniper-berries
Apples	Long zeadory
Apricots	Lovage
Apricot stones	Mace
Bananas	Malt
Barberry	Marjoram
Basil	Mountain ash
Bay-leaf	Mugwort
Bay-berry	Mustard-seed
Bees wax	Nigella
Bilberries	Nutmeg
Bitter oranges	Nuts (walnuts) (hazelnuts)
Blackberry	Onions
Blackcurrent	Parsley (seed, root)
Cacao	Peach
Cacao nuts	Peach-kernel
Cacao shells	Pepper
Cardamoms	Peppermint
Carob	Pimento
Cassia cinnamon	Pineapple
Celery (leaves, Bulbs, seed)	Plums (all kinds of)
Cherry	Pomegranate
Chervil	Quince
Cinnamon bark	Radish
Cinnamon flowers	Raisins
Citrus fruits (oranges, lemons, grape- fruits, bergamots)	Raspberries
Cloves	Red bilberries
Clove-stems	Red Currant
Coffee	Root of the sweet-flag
Cola-nuts	Rosemary
Common laurel	Saffron
Coriander	Sallowthorn berries
Cranberry	Skirret
Cumin	Sloe
Dates	Star-anise
Dill	Strawberries
Dill-seed	Summer savory
Elder berries	Tarragon
Fennel seed	Tea
Figs	Thyme
Galangal	Tomato
Garlic	Tonca-beans
Ginger	Vanilla
Gooseberries	Water cresses
Grapes	Woodroof
Hips, fresh and dried	Wormwood

Essential Oils derived from fruits and spices

Angelica	Bergamot
Anise	Bitter Almonds (without prussic acid)
Basil sweet	Calamus

Essential Oils derived from fruits and spices (*continued*)

Caraway	Lemon
Cardamom	Limes, limette
Cassia	Lovage
Celery	Mace
Cherry-laurel (without prussic acid)	Mandarin
Cinnamon Ceylon	Marjoram
Cloves	Mustard
Coriander	Nutmeg
Dill	Onion
Dill seed	Orange
Estragon	Parsley
Fennel	Pepper
Galangal	Peppermint
Garlic	Pimento
Ginger	Rosemary
Grapefruit	Star-anise
Hops	Thyme
Juniper berries	Wormwood
Laurel leaves	

Flavouring Agents contained in fruits and spices

Acetic acid	Cinnamic acid
Acetic aldehyde	Cinnamylacetate
Acetol	Citral
Acetyl methylcarbinol	Citronellal
Acetylpropionyl	Citronellol
Amyl alcohol	Citronellylacetate
Amylacetate	Citronellylbutyrate
Amylbutyrate	Coumarin
Amylcaprylate	Decylaldehyde
Amylcaproate	Diacetyl
Amylcaprylate	Diallyldisulfide
Amylformate	Diallyltrisulfide
Amylisovalerianate	Dimethylantranilate
Amylpropionate	2, 5, dimethylpyrazin
Amylvalerianate	2, 6, dimethylpyrazin
Anethol	Dimethylsulfide
Anisic aldehyde	Dioxyacetophenon
Anisic alcohol	Dodecylaldehyde
Anisylacetate	Ethylacetate
Benzaldehyde	Ethyl benzoate
Benzylalcohol	Ethyl butyrate
Benzylacetate	Ethyl caprylate
Benzylbutyrate	Ethyl capronate
Benzylformate	Ethyl caprylate
Benzylpropionate	Ethyl formate
Borneol	Ethyl heptylate
Bornylacetate	Ethyl ether of hydrochinon
Butyric acid	Ethyl isobutyrate
Butylacetate	Ethyl isovalerianate
Butylbutyrate	Ethyl laurinate
Butylisobutyrate	Ethylloanthate
Camphor	Ethyl pelargonate
Capric acid	Ethyl propionate
Caproic acid	Ethyl salicylate
Caprylic acid	Ethyl valerianate
Carvon	Eucalyptol
Cinnamic aldehyde	Eugenol
Cinnamic alcohol	Eugenolacetate

Flavouring Agents contained in fruits and spices (continued)

Formic acid	Methylbenzoate
Furfuric aldehyde	Methylchavicol
Furfurylacetate	Methylcyclopentenolon
Furfuryl alcohol	Methyleugenol
Furfurylbutyrate	Methylfurfural
Furfurylmercaptan	Methylheptenon
Furfurylpyrrol	Methylmercaptopropionic acid
Geraniol	Methylpyrazin
Geranylacetate	Methylpyrrol
Geranylbutyrate	Methylsalicylate
Heliotropin	Methylvalerate
Heptylic acid	Nerol
Hydroquinone	Nerylacetate
Iroose	Nerolidol
Isoamylalcohol	Nonylaldehyde
Isobutyric acid	Octylaldehyde
Isoeugenol	Oenanthic acid
Isomenthon	Palmitic acid
Isovaleric acid	Pelargonic acid
Ionone	Phenylethylacetate
Lauric acid	Phenylethylalcohol
Limonene	Phenylethylbutyrate
Linalool	Phenylethylpropionate
Linalyl acetate	Phenylethylisothiocyanate
Linalyl butyrate	Phenylacetic acid and its esters
Maltol	Pyrazin
Menthofuran	Safranal
Menthol	Tannic acid
Menthon	Terpineol
Menthyl acetate	Terpinylacetate
Menthylisovalerate	Thymol
Methylethylacetic aldehyde	Valeric acid
Methylanthranilate	Vanillin

Vegetable Drugs

Alder-buchthorn-bark	Guaiac resin
Aloe	Guaiac wood
Althea roots	Gum benzoin Siam
Ambergris	Gum benzoin Sumatra
Angelica roots	Hop-flowers
Angelica seed	Hyssop
Arnica flowers	Island-moss
Arnica roots	Knotgrass
Balsam peru	Lavender-flowers
Balsam tolu	Leaves of balm
Buds of poplar	Leaves of colt's foot
Buds of red currants	Linden-tree flowers
Carrot seed	Liquorice roots
Cascarilla bark	Lovage roots
Celery seed	Mallow-flowers
Centaury	Manna
Common heath	Mellilot
Common yarrow	Mullein flowers
Cubebs	Musk seed
Eucalyptus leaves	Myrrh
Flowers of chamomill	Orris root
Flowers of colts foot	Pine-needles
Gentian roots	Quinquina bark

Vegetable Drugs (*continued*)

Ratanhia root	Spearmint
Rhubarb roots	Styrax
Ribwort leaves	Tamarind
Roots of elecampane	Valerian roots
Roots of sarsaparilla	Violet flowers
Rose flowers	Walnut leaves
Sage leaves	Walnut shells
Sandalwood	Water trefoil
Snake root	

Essential Oils derived from Vegetable Drugs

Angelica seed, Oil of	Neroli
Bay leaves	Nigella
Boronia	Origanum
Brandy	Orris root
Buchu leaves	Palmarosa
Cajuput	Petitgrain
Cananga	Pine
Carrot seed	Pine needles
Cedar wood	Pine sibirian
Chamomile roman	Pinus silvestris
Cinnamon leaves	Rose
Citronella	Sage
Cubebs	Sage clary
Cypress	Spearmint
Eucalyptus	Spike-lavender
German chamomile	Valerian
Hyssop	Vetiver
Lavender	Wintergreen
Myrrh	

Individual Substances contained in Vegetable Drugs

Amyl benzoate	Ethylester of cinnamic acid
Benzyl benzoate	Hydratropaaldehyde

FEDERAL REPUBLIC OF GERMANY

LIST OF SYNTHETIC SUBSTANCES SPECIFICALLY PERMITTED
FOR USE IN FLAVOURINGS

Allyl capronate
 Allyl cyclohexane propionate
 Ammonium chloride
 Ethyl vanillin
 Heptin carboxylic acid methyl ester
 Hydroxycitronellal
 Methyl-phenyl glycidic acid ester (Strawberry aldehyde, so-called Aldehyde C₁₀)
 nonalactone (coconut aldehyde) so-called Aldehyde C₁₀)
 Propenyl guaethol
 Resorcinol-dimethyl ether
 Undecalactone (Peach aldehyde, so-called Aldehyde C₁₀)

FEDERAL REPUBLIC OF GERMANY

List of Substances specifically prohibited for use in Food

Agaric acid
 Birch tar oil
 Dulcamara
 Juniper tar
 Nitrobenzene
 Oil of bitter almond with a content of free or bound hydrocyanic acid
 Pennyroyal
 Polypody root
 Quassia wood
 Quillaja bark
 Rue
 Sassafras wood
 Tansy

Information and representations have been received from the following organisations and other interests concerned with the use of flavouring materials in food.

Aktieselskabet Grindstedvoerket (Denmark)
Beechams Food and Drink Division Ltd.
British Baking Industries Research Association
British Food Manufacturing Research Association
British Essence Manufacturers' Association
Chemicovers Ltd.
Firmenich and Co. Ltd.
Flavouring Compound Manufacturers Association
Imperial Chemical Industries Limited
J. Lyons and Co. Ltd.
National Association of Soft Drink Manufacturers Ltd.
Peter Spence and Sons
Unilever Limited

